: 3.50...3.60 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : RVI 12,0 f1 : 29.03.89 : 31.7.87 Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 046 758 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A320RS3139 : 0 412 026 718 EP type number 1st speed rpm: 600 Governor Governor design. : RQV275...950PA728-1 Rack travel in mm : 12.50...12.60 Governer no. : 0 421 813 465 Del.quantity cm3/: 23.7...23.9 Customer-spec. information 100 s: (23.4...24.2) Customer : RVI cm3 : 0.5: MIDR 063540 Engine Spread 100 s: (0.9) : 243.0 1st version kW : 1900 Rated speed 2nd speed rpm : 275.0 Rack travel in mm : 5.50...5.70 TEST BENCH REQUIREMENTS Del.quantity cm3/: 2.3...2.9 100 s: (2.0...3.2) Test oil inlet temp. °C : 38...42 cm3 : 0.8 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 275 : 1.30...1.70 assembly : 1 688 901 019 travel mm rpm : 450 2nd speed : 3.30...3.70 Opening | travel mm rpm : 800 : 207...210 pressure, bar 3rd speed : 5.60...6.00 travel mm rpm : 950 Orifice plate 4th speed : 6.70...6.90 diameter mm : 0,8 travel mm GUIDE SLEEVE POSITION Test Lines : 1 680 750 067 Control-lever position Degree: -1 Speed rpm : 1125 Rack travel in mm : 15.20...17.80 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 600 Set equal delivery quant. Speed

Aneroid pressure h: 1000

cm3

1000

Del.quantity

Spread

: 237.0...239.0

1000 : (234.0...242.0)

: 5.00

: (9.00)

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 11.50

Speed rpm : 1020...1030 2nd rack travel in: 4.00

rpm : 1155...1185 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 200 Minimum rack trave: 7.30

: 275 Speed rom

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rpm : 300...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm hPa : 1000 Pressure

Rack travel mm : 12.50...12.60

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 520

Rack travel in m: 11.70...11.80

3rd pressure hPa : 200

Rack travel in m: 9.80...10.50

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 950 Del.quantity cm3/ : 227.0...233.0

1000 s: (224.0...236.0)

SOA

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 120.0...122.0 1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 1020...1030 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm: 5.40...5.60 Del.quantity cm3/: 23.0...29.0 1000 s: (20.0...32.0)

Spread

cm3 : 8.00 1000 s: (12.00)

Remarks:

Start-of-delivery mark 9° cam angle

after start of delivery cyl. 1.

Note remarks

Test sheet : MB 11,4 l12 Edition : 14.04.89 Replaces : 12.85

Test oil : ISO-4113

Combination no. : 0 402 046 762

Injection pump

Pump designation : PES6P120A820LS3077-

10

EP type number : 0 412 026 714

Governor

Governor design. : RQ300/1100PA761 Governor no. : 0 421 801 302

Customer spec. information

Customer : DAIMLER-BENZ

Engine : OM407A

1st version kW : 177.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)
Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 15.2...15.4

100 s: (14.9...15.7)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm: 300.0

Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3: 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm: 650

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100

Del.quantity : 152.0...154.0

1000 : (149.0...157.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm : 13.5

A03

Testing:

1st rack travel in: 9.50

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1350

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.1

Testing:

Speed rpm : 100 Minimum rack trave: 6.70

Speed rpm: 300
Rack travel in mm: 5.00...5.20
Rack travel in mm: 2.00

rpm : 360...400 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 11,7 a 4 : 14.04.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 046 764 Injection pump Pump designation : PES6P110A820LS3131 EP type number : 0 412 016 715 Governor Governor design. : RQ300/1100PA779 Governer no. : 0 421 801 325 Customer-spec. information : DAIMLER-BENZ Customer Engine : 0M427h 1st version kW : 177.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 Opening | pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

+++++++++++++++++++++++++++++++++++++++	: (4.254.45) Rack travel in mm : 9.0012.00 Firing order : 6-2-4-1-5-3
}	Phasing : 0-60-120-180-240-300
Ŧ	Tolerance + - ° : 0.50 (0.75)
Ŧ	Time to cyl. no. : 6
‡	BASIC SETTING
Ŧ	1st speed rpm: 1100
‡	Rack travel in mm : 11.1011.20
‡	Del.quantity cm3/: 14.014.2
‡	100 s: (13.714.5)
‡	Spread cm3: 0.4
‡	100 s: (0.8)
+++++++	2nd speed rpm : 300.0 Rack travel in mm : 7.17.3 Del.quantity cm3/ : 1.42.0 100 s: (1.12.3) Spread cm3 : 0.4 100 s: (0.7)
++++++	GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm : 600 Rack travel in mm : 19.2020.80
1	FULL LOAD DELIV. AT FULL LOAD STOP
+ + + + + + + + + + + + + + + + + + + +	1st version Speed rpm : 1100 Del.quantity : 140.0142.0 1000 : (137.0145.0) Spread cm3 : 4.00 1000 : (8.00)
Ŧ	RATED SPEED
Ŧ	1st version
+++++++++++++++++++++++++++++++++++++++	Setting point: Speed rpm : 600 Rack travel in mm : 20.0
I I	Testing: 1st rack travel in: 10.20 Speed rpm : 11401150

: 4.30...4.40

: (4.25...4.45)

Prestroke mm

2nd rack travel in: 4.00 rpm : 1175...1205 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.2 Testing: rpm : 100 Speed Minimum rack trave: 8.80 : 300 Speed rpm Rack travel in mm : 7.10...7.30 Rack travel in mm : 2.00 rpm : 360...400 Speed

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 117.0...121.0 1000 s: (114.0...124.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 11,7 a 9 Edition : 14.04.89 : 2.12.86 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 773 Injection pump Pump designation : PES6P110A820LS3131 EP type number : 0 412 016 715 Governor Governor design. : RQ300/1100PA800 Governer no. : 0 421 801 347 Customer-spec. information : DAIMLER-BENZ Customer Engine : 0M427H 1st version kW : 177.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

+	Prestroke mm	: 4.304.40
‡	Rack travel in mm Firing order	: (4.254.45) : 9.0012.00 : 6- 2- 4- 1- 5- 3
‡	Phasing	: 0-60-120-180-240-300
‡	Tolerance + - °	: 0.50 (0.75)
‡	Time to cyl. no.	: 6
‡	BASIC SETTING	
‡	1st speed rpm	: 1100
‡	Rack travel in mm	: 11.0011.10
‡	Del.quantity cm3/	: 13.914.1
‡	100 s	: (13.614.3)
‡	Spread cm3	: 0.4
‡	100 s	: (0.8)
+ + + + + + + + + + + + + + + + + + + +	2nd speed rpm Rack travel in mm Del.quantity cm3/ 100 s	: 7.27.4
+	Spread cm3	: 0.4 : (0.8)
T + + + + + + + + + + + + + + + + + + +	GUIDE SLEEVE POSIT Control-lever posi Degree Speed rpm	tion : -1 : 600
‡	Rack travel in mm	: 13.0014.00
‡	FULL LOAD DELIV. A	T FULL LOAD STOP
+ + + + + + + + + + + + + + + + + + + +	1st version Speed rpm Del.quantity 1000 Spread cm3 1000	: 1100 : 139.0141.0 : (136.5143.5) : 4.00 : (8.00)
I	RATED SPEED	
I	1st version	
╶ ╇╌╋╌╋╌╋╌╋╌╋╌╋╌╇╍╇╌╇╍	Setting point: Speed rpm Rack travel in mm	: 600 : 13.5
++++++	Testing: 1st rack travel in Speed rpm	: 10.00 : 11401150

: 4.30...4.40

Prestroke mm

2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.3 Testing: Speed : 100 rpm Minimum rack trave: 8.80 : 300 Speed Libu Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00
Speed rpm: 380...420 FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 116.0...119.0 1000 s: (113.0...122.0) cm3 : 6.00Spread 1000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0) Remarks: Adjust full-load delivery by turning temperature-dependent excess-fuel stop for starting (TAS). APPLICATION **Omnibus**

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 11,7 a10 Test sheet Edition : 07.04.89 : 31.10.86 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 775 Injection pump Pump designation : PES6P110A820LS3131 : 0 412 016 715 EP type number Governor Governor design. : RQ300/1100PA786-1 : 0 421 801 353 Governer no. Customer-spec. information : DAIMLER-BEN7 Customer : 0M427H Engine 1st version kW : 177.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar Test Lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: (4.25...4.45) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 13.9...14.1 100 s: (13.6...14.3) cm3 : 0.4Spread 100 s: (0.8) 2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.4Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 550 Speed Rack travel in mm: 13.00...14.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed : 139.0...141.0 Del.quantity 1000 : (136.5...143.5) : 4.00 Spread cm3 1000 : (8.00) RATED SPEED 1st version Setting point: Speed rpm Rack travel in mm: 13.5 Testing: 1st rack travel in: 10.00 Speed rpm : 1140...1150

: 4.30...4.40

Prestroke mm

2nd rack travel in: 4.00 Speed rpm: 1195...1225 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.3 Testing: Speed rpm: 100
Minimum rack trave: 8.80
Speed rpm: 300
Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00 Speed : 380...420 rpm FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 116.0...119.0 1000 s: (113.0...122.0) Spread cm3 : -1000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0) Remarks: Adjust full-load delivery by turning temperature-dependent excess-fuel stop for starting (TAS).

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.50...3.60 : (3.45...3.65) Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : RVI 9,8 f 1 Test sheet Edition : 14.04.89 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasina Combination no. : 0 402 046 789 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A320RS3139 EP type number : 0 412 026 718 1st speed rpm: 1000 Governor Rack travel in mm : 11.00...11.10 Governor design. : RQV275...1000PA728-3 : 0 421 813 657 Governer no. Del.quantity cm3/: 19.1...19.3 Customer-spec. information 100 s: (18.8...19.6) Customer : RVT : MIDR 062045 H cm3 : 0.5Engine Spread : 227.0 100 s: (0.9) 1st version kW : 2000 Rated speed 2nd speed rpm : 275.0
Rack travel in mm : 5.3...5.5
Del.quantity cm3/ : 1.8...2.4 TEST BENCH REQUIREMENTS 100 s: (1.5...2.7) Test oil inlet temp. °C : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 250 : 1 688 901 019 : 0.90...1.10 assembly travel mm 2nd speed rpm : 450 : 3.30...3.70 Openina travel mm pressure, bar : 207...210 3rd speed rpm : 800 : 5.60...6.00 travel mm rpm : 1000 Orifice plate 4th speed : 7.00...7.20 diameter mm : 0,8 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 067 Control-lever position Degree: -1 rpm : 1170 Outside diameter Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00x1.50x1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1000 Set equal delivery quant. Speed per values Aneroid pressure h: 1000

: 5.00

: (9.00)

cm3 1000

Spread

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testina:

1st rack travel in: 10.00

Speed rpm: 1065...1075 2nd rack travel in: 4.00

Speed rpm: 1180...1210 4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 8...16

Testing:

Speed rpm : 200 Minimum rack trave: 7.10

Speed rpm : 275
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 310...415

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 1000 Pressure

Rack travel mm : 11.00...11.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.60...8.80 2nd pressure hPa : 280

Rack travel in m: 10.30...10.40

3rd pressure hPa : 160 Rack travel in m: 9.30...9.50

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm: 600

Del.quantity cm3/: 187.0...193.0

1000 s: (184.0...196.0)

A12

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 98.0...100.0
1000 s: (95.0...103.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1065...1075

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 18.0...24.0 1000 s: (15.0...27.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

Start-of-delivery mark 9.5° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 12,0 f2 Edition : 07.02.89 : 20.5.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 791 Injection pump

Pump designation : PES6P120A320RS3139 EP type number : 0 412 026 718

Governor

Governor design. : RQV275...950PA728-4 : 0 421 813 678 Governer no.

Customer-spec. information Customer : RVI

Engine : MIDR 063540 H

1st version kW : 264.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.30...13.40

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 7.5...7.7 Del.quantity cm3/: 2.3...2.9 100 s: (2.0...3.2)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed travel mm

: 1.00...1.20 rpm : 450 2nd speed

: 3.30...3.80 rpm : 800 travel mm

3rd speed

: 5.80...6.00 travel mm rpm : 950 4th speed

GUIDE SLEEVE POSITION Control-lever position

: 6.80...6.90

Degree: -1 Speed rpm : 1140 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

travel mm

rpm : 600 Speed Aneroid pressure h: 1000

: 254.0...256.0 Del.quantity 1000 : (251.0...259.0)

: 5.00 Spread cm3 1000 : (9.00) RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.30

rpm : 1015...1025 Speed

2nd rack travel in: 4.00

Speed rpm : 1160...1190 4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 8...16

Testina:

Speed rpm: 200 Minimum rack trave: 7.60

Speed rpm: 275

Rack travel in mm : 5.80...6.00

CONSTANT REGULATION

Speed rpm : 295...400

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 1000 Rack travel mm : 13.30...13.40

Measurement

Speed

1/min: 500

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 660

Rack travel in m: 12.60...12.70
3rd pressure hPa : 200
Rack travel in m: 10.30...10.50

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 950 Del.quantity cm3/: 245.0...251.0 1000 s: (242.0...254.0)

A14

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 120.0...122.0 1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 23.0...29.0
1000 s: (20.0...32.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 9° cam angle

after start of delivery cyl. 1.

: 4.30...4.40 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks : 6-2-4-1-5-3 Firing order : MB 11,7 a11 Test sheet : 07.04.89 Edition : 7.1.88 Replaces : ISO-4113 Phasing : 0-60-120-180-240-300 Test oil Combination no. : 0 402 046 793 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3131 EP type number : 0 412 016 715 BASIC SETTING Governor Governor design. : RQ300/1100PA800-1 1st speed rpm: 1100 : 0 421 801 426 Governer no. Rack travel in mm : 9.90...10.00 Customer-spec. information Del.quantity cm3/: 10.9...11.1 Customer : DAIMLER-BENZ : OM447h 100 s: (10.6, ..11.3) Engine : 150.0 1st version kW Spread cm3 : 0.4: 2200 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Rack travel in mm: 7.1...7.3 Test oil Del.quantity cm3/: 1.4...2.0 inlet temp. °C : 38...42 100 s: (1.1...2.2) Overflow valve cm3 : 0.4Spread : 1 417 413 025 100 s: (0.8) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Overflow Degree: -1 quantity min. 1/h: 100...120 rbm : 600 Speed Rack travel in mm : 13.00...14.00 Test nozzle holder assembly : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Openina 1st version pressure, bar : 172...175 Speed Del.quantity 1000 Test lines : 1 680 750 015 Spread Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length mm

rpm : 1100 : 109.0...111.0 : (106.5...113.5) cm3 : 4.001000 : (8.00)

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

1st version Setting point: Speed rpm Rack travel in mm: 13.5 Testing: 1st rack travel in: 8.90 rpm : 1140...1150 Speed

2nd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.2 Testing: Speed rpm : 200 Minimum rack trave: 9.50 Speed rpm : 300 Rack travel in mm : 7.10...7.30 Rack travel in mm: 2.00 rpm : 360...400 Speed FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 80.0...84.0 1000 s: (77.0...87.0) cm3 : 6.00Spread 1000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.90 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : PER 12,2 c : 31.03.89 : 7.2.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 046 797 Injection pump Pump designation : PES6P120A320RS3212 : 0 412 026 731 EP type number Governor Governor design. : RQV250..1050PA794-2 : 0 421 813 698 Governer no. Customer-spec. information Customer : PERKINS : EAGLE TX Engine 1st version kW : 240.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm

(A) Injection pump setting values

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Insp. values in parentheses Set equal delivery quant.

: (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1- 4- 2- 6- 3- 5 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 900 1st speed Rack travel in mm : 14.60...14.70 Del.quantity cm3/: 23.9...24.1 100 s: (23.6...24.4) Spread cm3 : 0.6100 s: (0.9) 2nd speed rpm : 250.0Rack travel in mm : ? Del.quantity cm3/: 1.3...1.7 100 s: (1.0...2.0) cm3 : 0.3Spread 100 s: (0.6) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 250 : 0.90...1.30 1st speed travel mm 2nd speed rpm : 350 : 2.90...3.50 travel mm rpm : 700 3rd speed : 4.00...4.60 travel mm rpm : 1000 4th speed : 7.40...7.60 travel mm : 1100 5th speed rpm : 8.80...9.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1070 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 900 Aneroid pressure h: 1200

: 3.50...3.60

Prestroke mm

Del.quantity : 239.0...241.0 1000 : (236.0...244.0) : 6.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 13.60 rpm : 980...990 Speed 2nd rack travel in: 4.00 Speed rpm : 1085...1115 4th rack travel in: 1250 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 16...24 Testing: Speed rpm : 100 Minimum rack trave: 7.50 rpm : 250 Rack travel in mm : 5.90...6.10 CONSTANT REGULATION rpm : 250...550 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1200 Pressure : 14.60...14.70 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 12.20...12.30 2nd pressure hPa : 900 Rack travel in m: 14.10...14.20 3rd pressure hPa : 510 Rack travel in m: 12.60...12.80

START CUT-OUT 1/min: 170 (190) Speed FUEL DELIVERY CHARACTERISTICS

1st version

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Aneroid pressure h: 1200

Speed rpm : 600

Del.quantity cm3/: 243.0...249.0 1000 s: (240.0...252.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60 rpm : 980...990 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...170.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.30...4.40 : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks : 6-2-4-1-5-3 Firing order Test sheet Edition : MB 11,8 r : 31.03.89 Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 402 046 804 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3222 EP type number : 0 412 016 725 BASIC SETTING Governor Governor design. : RQ350/1100PA655-1 1st speed rpm: 1050 : 0 421 801 475 Governer no. Rack travel in mm : 8.80...8.90 Customer-spec. information Del.quantity cm3/: 10.3...10.5 : DAIMLER-BENZ Customer : 0M447h 100 s: (10.0...10.7) Engine : 132.0 cm3 : 0.41st version kW Spread : 2200 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.3 Test oil inlet temp. °C Del.quantity cm3/: 1.4...2.0 : 38...42 100 s: (1.1...2.2) cm3 : 0.4Overflow valve Spread : 1 417 413 025 100 s: (0.8) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Overflow quantity min. 1/h: 100...120 Speed rpm : 600 Rack travel in mm : 13.00...14.00 Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening | 1st version : 172...175 Speed rpm : 1050 pressure, bar : 103.0...105.0 Del.quantity 1000 : (100.5...107.5) Test lines : 1 680 750 015 : 4.00 Spread cm3 1000 : (8.00) Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length mm

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 13.5

Testing:

1st rack travel in: 7.80

Speed rpm : 1095...1110

A19

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

2nd rack travel in: 4.00 Speed rpm : 1140...1170 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.1 Testing: Speed rpm : 200 Minimum rack trave: 9.50 Speed rpm : 350
Rack travel in mm : 7.00...7.30 Rack travel in mm : 2.00 Speed : 400...440 rpm TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 8.80...8.90 2nd speed rpm : 800 Rack travel in m: 8.90...9.10 3rd speed rpm : 600 Rack travel in m: 9.10...9.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 94.0...98.0 1000 s: (91.0...101.0) cm3 : 6.00 Spread 1000 s: (9.00) RACK STOP ADJUSTMENT Speed rpm : 600 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.80 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0) Remarks:

Note remarks

Test sheet : KHD 9,6 u 3 : 14.04.89 Edition

Replaces

: ISO-4113 Test oil

: 0 402 046 805 Combination no.

Injection pump

Pump designation : PES6P110A720RS3104

EP type number : 0 412 016 712

Governor

Governor design. : RQV300...1075PA850-3

: 0 421 813 743 Governer no.

Customer-spec. information Customer : KHD

: BF6L413FRC/513RC Engine

1st version kW : 198.0 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90

: (2.75...2.95) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1075 1st speed

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.02nd speed Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.4) cm3 : 0.4

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed 1.00...1.40 travel mm

rpm : 450 2nd speed : 2.60...3.20 travel mm

rpm : 650 3rd speed

: 4.70...5.30 travel mm

rpm : 1110 4th speed

: 8.20...8.40 travel mm

5th speed rpm : 1250

: 9.50...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1075 Speed

Aneroid pressure h: 900

Del.quantity : 104.0...169.0)

Spread : 4.00

: (7.50) 1000

RATED SPEED

1st version Control Lever

position degrees: 52...60

Testing:

1st rack travel in: 13.00 Speed rpm: 1105...1115 2nd rack travel in: 4.00

Speed rpm: 1235...1265 4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 19...27

Testina:

: 100 Speed rpm

Minimum rack trave: 9.40

Speed rpm : 300 Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

rpm : 300...520 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1075

Rack travel in m: 14.00...14.10

2nd speed rpm : 700

Rack travel in m: 14.20...14.40

3rd speed rpm : 850

Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm

hPa : 900 Pressure : 14.20...14.30 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 12.40...12.60

2nd pressure hPa : 510

Rack travel in m: 13.70...13.80

3rd pressure hPa : 375

Rack travel in m: 12.70...12.90

START CUT-OUT

1/min : 250 (270) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700 Del.quantity cm3/ : 170.0...174.0 1000 s: (168.0...176.0)

Aneroid pressure h: -

Speed rpm : 450 Del.quantity cm3/ : 123.0...125.0

1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1105...1115 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 170.0...200.0 1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : KHD 9,6 u 4 : 14.04.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 046 806

Injection pump

Pump designation : PES6P110A720RS3104

EP type number : 0 412 016 712

Governor

Governor design. : RQV300...1150PA850-4

: D 421 813 745 Governer no.

Customer-spec. information Customer : KHD

Engine : BF6L513RC

1st version kW : 210.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.02nd speed Rack travel in mm: 7.6...7.8 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.9) cm3 : 0.4

Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.00...1.40 rpm : 450 2nd speed

: 2.60...3.20 travel mm

rpm : 650 3rd speed travel mm

: 3.30...3.90 rpm : 1195 4th speed

: 8.30...8.50 travel mm

5th speed rpm : 1330

: 9.70...10.10 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1190 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900

Del.quantity : 100.0...170.0)

Spread cm3 : 4.00

1000 : (7.50) RATED SPEED

1st version

Control Lever

position degrees: 52...60

Testing:

1st rack travel in: 13.00

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1315...1345 Speed

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 19...27

Testing:

: 100 Speed rpm

Minimum rack trave: 9.20 rpm : 300

Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

rpm : 300...550 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 14.00...14.10

2nd speed rpm : 750

Rack travel in m: 14.20...14.40 3rd speed rpm : 850

Rack travel in m: 14.10...14.30

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : 900 Pressure

: 14.20...14.30 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 12.40...12.60

2nd pressure hPa : 510
Rack travel in m: 13.70...13.80
3rd pressure hPa : 375
Rack travel in m: 12.70...12.90

START CUT-OUT

1/min: 250 (270) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed

Del.quantity cm3/: 170.0...174.0

1000 s: (168.0...176.0)

Aneroid pressure h: -

Speed rpm : 450
Del.quantity cm3/ : 123.0...125.0
1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : MB 11,7 a14 Edition : 08.05.89

Replaces

Test oil : ISO-4113

: 0 402 046 807 Combination no.

Injection pump

Pump designation: PES6P110A820LS3131-1

EP type number : 0 412 016 717

Governor

Governor design. : RQV300..1100PA916

Governer no. : 0 421 813 748

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M447

: 168.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40 : (4.25...4.45) Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasina : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.1)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.4Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.10...1.40 travel mm rpm : 450 2nd speed

: 3.40...3.80 travel mm

: 1150 3rd speed rpm : 7.90...8.30 travel mm

: 1225 4th speed rpm

: 9.10...9.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1140 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity : 137.0...139.0

1000 : (134.5...141.5)

cm3 : 4.00Spread 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 9.90 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1185...1215 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 20...28 Testing: rpm : 200 Speed Minimum rack trave: 8.80 Speed rpm : 300 Rack travel in mm : 7.20...7.40 CONSTANT REGULATION rpm : 300...500 Speed START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version 1000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than

full load rack tr: 9.90 Speed rpm : 1140...1150

speed rpill : 1140...

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0)

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Remarks:

Note remarks

Test sheet : MB 11,7 a15 Edition : 08.05.89

Replaces

: ISO-4113 Test oil

: 0 402 046 808 Combination no.

Injection pump

Pump designation : PES6P110A820LS3131-1

: 0 412 016 717 EP type number

Governor

Governor design. : RQV300..1100PA916-1

: 0 421 813 749 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : OM447

1st version kW : 177.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow |

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40 : (4.25...4.45)

Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 13.9...13.9

100 s: (13.6...14.1)

Spread cm3 : 0.4

100 s: (0.8)

rpm : 300.02nd speed Rack travel in mm: 7.2...7.4

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.4 Spread

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.10...1.40 travel mm

rpm : 450 2nd speed

: 3.40...3.80 travel mm

3rd speed rpm : 1150

: 7.90...8.30 travel mm rpm : 1225 4th speed

: 9.10...9.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1140 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity : 139.0...37.0 1000 : (136.5...141.5)

cm3 : 4.00 Spread 1000 : (8.00) RATED SPEED 1st version Control Lever position degrees: 50...58 Testing: 1st rack travel in: 9.90 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 20...28 Testing: rpm : 200 Speed Minimum rack trave: 8.80 Speed rpm : 300 Rack travel in mm : 7.20...7.40 CONSTANT REGULATION rpm : 300...500 Speed START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 116.0...119.0 1000 s: (113.0...122.0) cm3 : 5.00 Spread 1000 s: (9.00) BREAKAWAY 1st version

1mm rack travel less than

full load rack tr: 9.90 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0)

A28

Remarks:

Prestroke mm : 3.80...3.90 : (3.75...3.95) Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks : 6-2-4-1-5-3 Firing order : MAN 11,9 m Test sheet : 28.04.89 Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 : 0 402 046 809 Combination no. Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS3229 : 0 412 026 733 EP type number BASIC SETTING Governor Governor design. : RQ750PA661-2 rpm: 700 1st speed : 0 421 801 343 Governer no. Rack travel in mm : 14.40...14.50 Customer-spec. information Del.quantity cm3/: 28.1...28.3 : MAN Customer Engine : D2866LE 100 s: (27.8...28.6) : 230.0 cm3 : 0.51st version kW Spread : 1500 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.02nd speed Rack travel in mm : 6.7...7.3 Del.quantity cm3/ : 2.4...3.0 100 s: (2.1...3.3) Test oil inlet temp. °C : 38...42 Overflow valve cm3 : 0.8Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder 1st version : 1 688 901 019 rpm : 700 assembly Speed Del.quantity : 281.0...283.0 1000 : (278.0...286.0) **Opening** : 5.00 : 207...210 pressure, bar Spread cm3 1000 : (9.00) Orifice plate diameter mm : 0,8 RATED SPEED 1st version : 1 680 750 075 Test Lines Testing: Outside diameter 1st rack travel in: 13.40 rpm : 750...755 x Wall thickness Speed : 8.00x2.50x1000 2nd rack travel in: 4.00 x Length mm rpm : 787...800 Speed

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

4th rack travel in: 950

Speed

rpm : 0.00...1.00

STARTING FUEL DELIVERY

(A) Injection pump setting values

Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Insp. values in parentheses

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

: MAN-NR. 2-7970

APPLICATION

Generator set

Note remarks

Test sheet : DEE 15,6 a : 2.5.89 Edition : 2.84 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 068 700

Injection pump

Pump designation : PES8P110A120RS3044

Governor

Governor design. : RSV400...1050P2/4350

Customer—spec. information Customer : JOHN DEERE

Engine : 8955 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.5

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2.75...2.85 Prestroke mm

: (2.70...2.90) Rack travel in mm : 9.00...12.00

: 1-5-6-3-4-2-7-8 Firing order

Phasing : 0-45-90-135-180-225-

B03

270-315 : 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 14.7...14.9

100 s: (14.3...15.3)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 750 Rack travel in mm : 12.00...12.20

Del.quantity cm3/: 16.4...16.7

100 s: (15.8...17.3)

cm3 : 0.6Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-Lever position

Dearee: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 680

Del.quantity : 147.0...153.0)

Spread : 4.0 cm3

1000 : (7.5)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.10

rpm : 1095...1105 Speed

2nd rack travel in: 4.00

Speed rpm: 1185...1215 4th rack travel in: 1275

: 0.30...1.70 Speed rpm

LOW IDLE 1

Control Lever position degrees: 17...25 Setting point w/out bumper spring rpm : 400° Rack travel in mm: 5.6 Testina: Speed rpm : 100 Minimum rack trave: 16.00 rpm : 400 Speed Rack travel in mm : 5.50...5.70 : 800 Speed **Lbw** Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 11.05...11.15 2nd speed rpm : 750 Rack travel in m: 11.95...12.25 3rd speed rpm : 550 Rack travel in m: 10.35...10.45 Aneroid/Altitude Compensator Test 1st version Settina Speed : 550 rpm hPa : 380 Pressure Rack travel mm : 11.37...11.65 Measurement 1/min: 550 Speed 1st pressure hPa : 280 Rack travel in m: 10.60...11.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 680 : 750 Speed rpm Del.quantity cm3/: 164.0...167.0 1000 s: (158.0...173.0) Spread cm3 : 6.01000 s: (9.0) Aneroid pressure h: -Speed rpm : 550 Del.quantity cm3/ : 130.0...134.0 1000 s: (124.0...140.0) Spread cm3 : 6.0 1000 s: (9.0) BREAKAWAY

1st version

B04

1mm rack travel less than full load rack tr: 10.10 Speed rpm : 1095...1105 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 180.0...200.0 1000 s: (-) HIGH IDLE 1st version Speed rpm : 1155 Del.quantity cm3/: 37.0...47.0 1000 s: (31.0...53.0) LOW IDLE Speed rpm : 400 Del.quantity cm3/ : 22.0...28.0 1000 s: (18.00...32.0) Remarks: Start-of-delivery mark 16° cam angle after start of delivery cyl. 8

Note remarks

Test sheet : MAN 10,0 m1 : 14.04.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 075 701

Injection pump

Pump designation : PES5P110A720LS3221

: 0 412 015 701 EP type number

Governor

Governor design. : RSV350...1100P0A487-

: 0 421 833 315 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M449

1st version kW : 147.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

B05

: 4.30...4.40 : (4.25...4.45) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2

Firing order

Phasing : D-72-144-216-288

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

rpm: 10801st speed

Rack travel in mm: 12.10...12.20

Del.guantity cm3/: 14.4...14.4

100 s: (14.1...14.6)

Spread cm3 : 0.4

100 s: (0.8)

rpm : 350.02nd speed

Rack travel in mm: 6.3...6.7 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0) cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

> Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed

: 144.0...144.0 Del.quantity 1000 : (141.5...146.5)

: 4.00 Spread cm3

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testina:

1st rack travel in: 10.50

rpm : 1130...1140 Speed

2nd rack travel in: 4.00

rpm : 1190...1220 Speed 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 6.5

Speed rpm : 350 Rack travel in mm : 6.30...6.70 Rack travel in mm: 2.00

: 470...530 Speed rpm

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/ : 124.0...128.0 1000 s: (121.0...131.0)

Spread cm3 : 6.00

1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Note remarks

Test sheet : VAL 7,2 a : 10.02.89 Edition : 19.5.88 Replaces Test oil : ISO-4113

Combination no. : 0 402 076 056

Injection pump

Pump designation : PES6P110A320RS505

: 0 412 016 072 EP type number Governor

Governor design. : RSV325...1150POA522

: 0 421 833 242 Governer no.

Customer-spec. information Customer : VALMET

Engine : 612 DSJ

: 165.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 : (2.95...3.15) Prestroke mm

Rack travel in mm : 9.00...12.00

B07

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 13.8...14.1

100 s: (13.5...14.3)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 325.0 2nd speed Rack travel in mm: 7.4...7.6 Del.quantity cm3/: 1.2...1.6 100 s: (0.9...1.8)

cm3 : 0.3 100 s: (0.6) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 700

: 138.0...141.0 Del.quantity

1000 : (135.5...143.5)

: 4.00 : (7.50) Spread cm3

1000

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testina:

1st rack travel in: 11.00 Speed rpm : 1190...1200 2nd rack travel in: 4.00

Speed rpm : 1290...1310 4th rack travel in: 1460 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 17...25 Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm : 7.0

Testing:

rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm : 325 Rack travel in mm : 7.40...7.60

Rack travel in mm : 2.00

rpm : 480...540 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 12.00...12.10

2nd speed rpm : 1150

Rack travel in m: 11.90...12.10

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 hPa : 700 Pressure

Rack travel mm : 12.00...12.10

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 400

Rack travel in m: 11.50...11.60

3rd pressure hPa : 270

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 102.0...105.0

1000 s: (99.5...107.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 325 Rack travel in mm : 7.40...7.60 Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3 : 3.00 1000 s: (6.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 y 1 : 07.04.89 Edition : 20.12.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 076 722

Injection pump Pump designation : PES6P120A720RS3203 : 0 412 026 728 EP type number

Governor

Governor design. : RSV400...1100P2A534

Governer no. : 0 421 833 275

Customer-spec. information : JOHN DEERE Customer

: 6466 HF-050 Engine

1st version kW : 194.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29 Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 15.6...15.8

100 s: (15.4...16.1)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 400.0 Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.7...2.2

100 s: (1.5...2.5) cm3 : 0.4 100 s: (0.7) Spread

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 130.3...161.0)

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.00 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1200...1210 4th rack travel in: 1300 rom : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 4.4 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 400 Speed LIDU Rack travel in mm : 4.80...5.00 Rack travel in mm: 2.00 : 540...600 Speed rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.00...12.10 2nd speed rom : 750 Rack travel in m: 12.80...13.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : -Pressure : 10.30...10.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 605 Rack travel in m: 11.00...11.10 2nd pressure hPa : 780 Rack travel in m: 12.10...12.50 3rd pressure hPa : 1200 Rack travel in m: 12.80...13.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 750 Speed rom Del.quantity cm3/: 174.5...179.5 1000 s: (172.0...182.0)

Del.quantity cm3/: 117.5...121.5 1000 s: (114.5...124.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1145...1155 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 90.0...110.0 1000 s: (85.0...115.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0) cm3 : 4.50Spread 1000 s: (7.50) Remarks: : JOHN DEERE # RE32035 Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer. Starting/full-load transition speed from holding magnet = 450 1/min. Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Speed

Aneroid pressure h: -

rpm

: 800

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 v Edition : 07.04.85 : 20.12.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 076 723 Injection pump Pump designation : PES6P120A720RS3203 EP type number : 0 412 026 728 Governor Governor design. : RSV400...1100P2A534-Governer no. : 0 421 833 276 Customer-spec. information Customer : JOHN DEERE : 6466 AF-050 Engine 1st version kW : 180.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X3.00X600 x Length mm

Prestroke mm : 3.55...3.65 : (3.50...3.70) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance $+ - \circ : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 11.80...11.90 Del.quantity cm3/: 15.0...15.2 100 s: (14.7...15.4) Spread cm3 : 0.4100 s: (0.7) rpm : 400.0 2nd speed Rack travel in mm : 4.8...5.0 Del.quantity cm3/ : 1.7...2.2 100 s: (1.5...2.5) Spread cm3 : 0.4100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Aneroid pressure h: 1200 : 150.0...152.0 Del.quantity 1000 : (147.5...154.5) : 4.00 Spread cm3 1000 : (7.50)RATED SPEED 1st version

Control lever

position degrees: 40...48

BEGINNING OF DELIVERY

per values _

Test pressure, bar: 27...29

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

Testina:

1st rack travel in: 10.80

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1210 4th rack travel in: 1350

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm: 4.4

Testing:

: 100 Speed rom Minimum rack trave: 19.00

rpm : 400

Rack travel in mm : 4.80...5.00

Rack travel in mm : 2.00

: 540...600 Speed COM

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 11.80...11.90

2nd speed rom : 700

Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting : 500 Speed rom hPa : 1200 Pressure

: 12.60...12.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.60

2nd pressure hPa : 720

Rack travel in m: 11.00...11.10

3rd pressure hPa : 895

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 700

Del.quantity cm3/: 173.5...178.5 1000 s: (171.0...181.0)

Aneroid pressure h: -

rpm : 800 Speed

B12

Del.quantity cm3/: 120.0...124.0 1000 s: (117.0...127.0)

BRFAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed : 100 rom

Del.quantity cm3/: 90.0...110.0

1000 s: (85.0...115.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

: 400 Speed rpm

Rack travel in mm : 4.80...5.00 Del.quantity cm3/ : 17.5...22.5

1000 s: (15.0...25.0)

cm3 : 4.50Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32033

Adjustment without torque-control spring retainer with 0.5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DEE 10,1 f : 07.04.89 Test sheet Edition : 30.9.88 Replaces : ISO-4113 Test oil Combination no. : 0 402 076 726 Injection pump Pump designation : PES6P110A720RS3209 : 0 412 016 722 EP type number Governor Governor design. : RSV400...1050P0A537 : 0 421 833 287 Governer no. Customer-spec. information Customer : JOHN DEERE Engine : 6619 AT 06 1st version kW : 172.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00X3.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

```
Firing order
                  : 1-5-3-6-2-4
                  : 0-60-120-180-240-300
Phasing
Tolerance + - °
                 : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
1st speed
              rpm: 1050
Rack travel in mm : 11,20...11.30
Del.guantity cm3/: 16.7...16.9
             100 s: (16.5...17.2)
Spread
             cm3 : 0.4
             100 s: (0.7)
             rpm : 400.0
2nd speed
Rack travel in mm: 5.0...5.2
Del.quantity cm3/: 1.6...2.1
             100 s: (1.3...2.3)
             cm3 : 0.4
Spread
             100 s: (0.7)
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -3
            rpm : 800
Rack travel in mm : 0.30...0.70
Governor spring pre-tension
Click setting x : ?
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
             rpm : 1050
Speed
Del.quantity : 107.3...172.0)
Spread
            cm3
                 : 4.00
            1000
                 : (7.50)
RATED SPEED
1st version
Control lever
 position degrees: 39...47
Testing:
1st rack travel in: 10.20
           rpm : 1090...1100
  Speed
2nd rack travel in: 4.00
           rpm : 1150...1160
 Speed
```

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 27...29

Rack travel in mm: 10.50

: 3.45...3.55

: (3.40...3.60)

3rd rack travel in: 4.00

Speed rpm : 1160...1190 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 4.6

Testing:

: 100 Speed rom Minimum rack trave: 19.00

rpm : 400

Rack travel in mm: 5.00...5.20
Rack travel in mm: 2.00
Speed rpm: 520...580

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 11.20...11.30

2nd speed rpm : 700

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 171.5...176.5 1000 s: (169.0...179.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 175.0...195.0

1000 s: (170.0...200.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 400 **Speed**

Rack travel in mm : 5.00...5.20

Del.quantity cm3/: 16.0...21.0 1000 s: (13.5...23.5)

cm3 : 4.50

Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE33898

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

Note remarks

: DEE 7,7 b : 07.04.89 : 30.9.88 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 076 727

Injection pump

Pump designation : PES6P120A720RS3203 : 0 412 026 728 EP type number

Governor

: RSV400...1100P2A534-Governor design.

Governer no.

: 0 421 833 290

Customer-spec. information

: JOHN DEERE Customer

: 6076AF Engine

1st version kW : 160.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 3.55...3.65 Prestroke mm : (3.50...3.70)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 13.4...13.6

100 s: (13.1...13.8)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 400.0 2nd speed

Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.7...2.2 100 s: (1.5...2.5)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Dearee: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

Del.quantity : 134.0...136.0 1000 : (131.5...138.5)

: 4.00 cm3

1000 : (7.50)

RATED SPEED

Spread

1st version Control lever

position degrees: 40...48

Testing: 1st rack travel in: 10.10 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1200...1210 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 4.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 4.80...5.00 Rack travel in mm : 2.00 rpm : 540...600 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.10...11.20 2nd speed rpm : 700 Rack travel in m: 12.40...12.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : Pressure : 10.50...10.70 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : 470 Rack travel in m: 11.20...11.30 2nd pressure hPa : 605 Rack travel in m: 11.80...12.20 3rd pressure hPa : 900 Rack travel in m: 12.40...12.60

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/: 165.5...170.5
1000 s: (163.0...173.0)

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: -Speed rpm : 800 Del.quantity cm3/: 122.0...126.0 1000 s: (121.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1145...1155

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm3 : 4.50

Spread cm3 : 4.50 1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32034

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

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BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks : DEE 7,7 c : 07.04.89 Test sheet Edition : 20.12.88 Replaces Test oil : ISO-4113 Combination no. : 0 402 076 728 Injection pump Pump designation : PES6P120A720RS3203 EP type number : 0 412 026 728 Governor Governor design. : RSV425...1050P2A489-: 0 421 833 291 Governer no. Customer-spec. information Customer : JOHN DEERE Engine : 6075 HRW01 1st version kW : 175.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test Lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X3.00X600 x Length mm

Prestroke mm : 3.553.65 : (3.503.70) Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4
Phasing : 0-60-120-180-240-300 Tolerance + - • : 0.50 (0.75) Time to cyl. no. : 1
PASIC SETTING 1st speed rpm: 1050 Rack travel in mm: 12.2012.30 Del.quantity cm3/: 16.016.2
100 s: (15.716.4) Spread cm3 : 0.4 100 s: (0.7)
2nd speed rpm : 425.0 Rack travel in mm : 4.85.0 Del.quantity cm3/ : 1.72.2 100 s: (1.52.5) Spread cm3 : 0.4 100 s: (0.7)
GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.300.70 Governor spring pre-tension
Click setting x : 4.75 FULL LOAD DELIV. AT FULL LOAD STOP 1st version
Speed rpm : 1050 Aneroid pressure h: 1200 Del.quantity : 160.0162.0 1000 : (157.5164.5) Spread cm3 : 4.00 1000 : (7.50)
RATED SPEED 1st version Control lever position degrees: 4048

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

Testina: 1st rack travel in: 11.20 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1170 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 16...24 Setting point w/out bumper spring rpm : 425 Speed Rack travel in mm: 4.4 Testing: : 100 Speed mqn: Minimum rack trave: 19.00 : 425 rpm Rack travel in mm : 4.80...5.00 Rack travel in mm : 2.00 : 570...630 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 12.20...12.30 2nd speed rpm : 600 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 mari hPa : 1200 Pressure : 13.40...13.60 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 12.10...12.30 2nd pressure hPa : 725 Rack travel in m: 12.50...12.60 3rd pressure hPa : 815 Rack travel in m: 12.90...13.30 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 157.0...161.0 1000 s: (154.0...164.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.20 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed : 100 rpm Del.guantity cm3/: 90.0...110.0 1000 s: (85.0...115.0) Rack travel in mm : 20.00...21.00 LOW IDLE : 425 Speed rpm Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0) cm3 : 4.50Spread 1000 s: (7.50) Remarks: : JOHN DEERE # RE32888 Adjustment without torque-control spring retainer with 0.5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer. Starting/full-load transition speed from holding magnet = 450 1/min. Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Speed

1st version

Aneroid pressure h: 1200

rom

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 191.0...196.0

1000 s: (188.5...198.5)

: 800

Note remarks

Test sheet : DEE 10,1 g : 07.04.89 Edition

Replaces Test oil

: ISO-4113

Combination no.

: 0 402 076 730

Injection pump

Pump designation : PES6P110A720RS3217

EP type number Governor

: 0 412 016 724

Governor design.

: RSV550...1050P2A534-

Governer no.

: 0 421 833 304

Customer-spec. information Customer

: JOHN DEERE

Engine

: 6619AT07

1st version kW

: 201.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 3.45...3.55 Prestroke mm : (3.40...3.60)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 1

BASIC SETTING

1st speed rom : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 18.6...18.8

100 s: (18.3...19.0)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 550.02nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 3.1...3.6 100 s: (2.9...3.9)

Spread

cm3 : 0.4100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 900

: 186.0...188.0 Del.quantity

1000 : (183.5...190.5)

: 4.00 cm3 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 39...47

Testina:

1st rack travel in: 10.70

Speed rpm : 1095...1105

2nd rack travel in: 4.00

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rpm : 1165...1175 Speed 4th rack travel in: 1275

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 17...25 Setting point w/out bumper spring

rpm : 550 Speed Rack travel in mm: 4.8

Testina:

Speed : 100 rpm Minimum rack trave: 19.00 : 550 rpm

Rack travel in mm : 5.20...5.40

Rack travel in mm : 2.00

: 680...740 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed

st speed rpm : 1050 Rack travel in m: 11.70...11.80

2nd speed rpm : 700

Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 hPa : 900 Pressure

: 12.50...12.70 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 425

Rack travel in m: 11.20...11.30

3rd pressure hPa : 675

Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700 Del.quantity cm3/ : 201.5...206.5

1000 s: (199.0...209.0)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 158.0...162.0 1000 s: (155.0...165.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 165.0...185.0 1000 s: (160.0...190.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 550 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 31.5...36.5 1000 s: (29.0...39.0)

Spread cm3 : 4.501000 s: (7.50)

Remarks:

: JOHN DEERE # RE36078

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Note remarks

: DEE 10,1 g1 Test sheet : 07.04.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 731

Injection pump

Pump designation : PES6P110A720RS3217

EP type number

: 0 412 016 724 Governor

Governor design. : RSV400...1050P2A534-

Governer no.

: 0 421 833 305

Customer-spec. information

Customer : JOHN DEERE

Engine : 6101 H

: 224.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 3.45...3.55 Prestroke mm

: (3.40...3.60)

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 21.2...21.4

100 s: (20.9...21.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 400.02nd speed

Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 2.6...3.1

100 s: (2.3...3.3)

cm3 : 0.4 100 s: (0.7) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050Aneroid pressure h: 1200

Del.quantity : 212.0...216.5)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.90 Speed rpm : 1090...1100

B21

2nd rack travel in: 4.00

Speed rpm : 1165...1175 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever position degrees: 14...22

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.1

Testing:

Speed : 100 **UDU** Minimum rack trave: 19.00

: 400 rpm

Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00

: 570...630 Speed COM

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 12.90...13.00

rpm : 700 2nd speed

Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500

hPa : 1200 Pressure

Rack travel mm : 13.70...13.90

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.90...11.10

2nd pressure hPa : 325

Rack travel in m: 11.60...11.70

3rd pressure hPa : 640

Rack travel in m: 12.90...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm_ : 700

Del.quantity cm3/: 228.0...233.0

1000 s: (225.5...235.5)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 160.0...164.0 1000 s: (157.0...167.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 165.0...185.0

1000 s: (160.0...190.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 26.0...31.0

1000 s: (23.5...33.5)

cm3 : 4.50Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE36881

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

Note remarks

: DEE 7,7 g : 07.04.89 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 733

Injection pump

Pump designation : PES6P110A720RS3224

: 0 412 016 726 EP type number

Governor

Governor design. : RSV475...1050P2A534-

: 0 421 833 313 Governer no.

Customer-spec. information

Customer : JOHN DEERE

: 6101 AT 001 Engine

1st version kW : 170.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 3.35...3.45 : (3.30...3.50)

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1050

Rack travel in mm : 12.90...13.00

Del.guantity cm3/: 15.9...16.1

100 s: (15.7...16.3)

Spread cm3 : 0.4

100 s: (0.6)

rpm : 475.0 2nd speed

Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.6)

cm3 : 0.6Spread

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting \bar{x} :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Aneroid pressure h: 700

Del.quantity : 759.5...163.5) Spread cm3

: 4.00 : (6.50) 1000

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing:

1st rack travel in: 11.90 Speed rpm : 1090...1100

B23

2nd rack travel in: 4.00

rpm : 1150...1160 Speed

3rd rack travel in: 4.00

Speed rpm : 1155...1185 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 14...22

Setting point a/out bumper spring

rpm : 475° Rack travel in mm: 4.9

Testing:

Speed : 100 rpm Minimum rack trave: 19.00

rpm : 475

Rack travel in mm : 5.30...5.50 Rack travel in mm : 2.00

rpm : 600...660 Speed

Aneroid/Altitude Compensator Test

1st version

Setting rpm : 500 hPa : 700 Speed rpm Pressure

Rack travel mm : 12.90...13.00

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.00...11.20

2nd pressure hPa : 145

Rack travel in m: 11.50...11.60 3rd pressure hPa : 290 Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 113.0...117.0 1000 s: (111.0...119.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 175.0...195.0 1000 s: (170.0...200.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 475
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 9.5...13.5
1000 s: (7.0...16.0)

Spread cm3 : 6.001000 s: (8.00)

Remarks:

: JOHN DEERE # RE39856

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 Firing order : MB 11,8 r : 29.03.89 Test sheet Edition Replaces Test oil : ISO-4113 Phasing Combination no. : 0 402 076 734 Tolerance + - 0 Injection pump Time to cyl. no. : 6 Pump designation: PES6P110A820LS3131-1 EP type number : 0 412 016 717 BASIC SETTING Governor Governor design. : RSV350..1100P0A487-9 1st speed : 0 421 833 316 Governer no. Rack travel in mm : 11.00...11.10 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 13.5...13.7 Engine : OM447 1st version kW : 168.0 Spread Rated speed : 2200 TEST BENCH REQUIREMENTS 2nd speed Test oil Rack travel in mm: 6.8...7.1 inlet temp. °C : 38...42 Del.guantity cm3/: 1.4...2.0 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow quantity min. 1/h: 100...120 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 assembly Opening . pressure, bar : 172...175 Test Lines : 1 680 750 015 Outside diameter x Wall thickness

Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1080 : 135.0...137.0 Del.quantity 1000 : (132.5...139.5) : 4.00 Spread cm3 1000 : (8.00) : 6.00X1.50X600 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values _ Control lever position degrees: 45...53

Testing:

1st rack travel in: 10.00

: 4.30...4.40

: 0.50 (0.75)

100 s: (13.2...13.9)

rpm: 1080

cm3 : 0.4

100 s: (0.8)

rpm : 350.0

cm3 : 0.4

Degree: -3

rpm : 800

100 s: (0.7)

100 s: (1.1...2.3)

: (4.25...4.45)

: 6-2-4-1-5-3

: 0-60-120-180-240-300

B25

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

rpm : 1130...1140 Speed 2nd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1350 rpm : 0.00...1.40 Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.9 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 350 Speed Rack travel in mm : 6.80...7.00 Rack travel in mm: 2.00 rpm : 400...440 Speed SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 111.0...115.0 1000 s: (108.0...118.0) Spread cm3 : 6.00 1000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1130...1140 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0) Remarks:

Note remarks

: MB 22,0 b Test sheet : 31.03.89 : 27.10.88 Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 640 812

Injection pump

Pump designation : PE12P12OA52OLS782O

EP type number : 0 412 620 814

Governor

Governor design. : RQV350...1150PA870-4

: 0 421 813 717 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : OM 444 LA

: 736.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 : (4.35...4.55) Prestroke mm

Rack travel in mm : 19.00...21.00

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 31.0...31.2

100 s: (30.7...31.5)

cm3 : 0.6 Spread

100 s: (1.0)

rpm : 350.02nd speed Rack travel in mm: 5.0...6.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

travel mm : 1.00...1.50

2nd speed rpm : 500

: 2.60...3.00 travel mm

rpm : 750 3rd speed

: 3.60...4.00 rpm : 1190 travel mm

4th speed

travel mm : 6.70...7.10

5th speed rpm : 1275

: 8.20...8.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1275 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP 1/min: 310 (330) Speed 1st version Speed rpm : 1150 FUEL DELIVERY CHARACTERISTICS Aneroid pressure h: 1800 Del.quantity : 310.0...315.0) 1st version : 6.00 Aneroid pressure h: 1800 1000 : (10.00) Speed rpm : 750 Del.quantity cm3/: 301.0...311.0 1000 s: (298.0...314.0) Spread cm3 : 10.00 1000 s: (15.0) RATED SPEED 1st version Aneroid pressure h: 1800 Control lever rpm : 1150 position degrees: 60...68 Speed Del.quantity cm3/: 240.0...243.0 * 1000 s: (237.0...246.0) Testing: 1st rack travel in: 13.30 cm3 : 10.00Spread rbm : 1190...1200 1000 s: (15.0) Speed 2nd rack travel in: 4.00 Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 94.0...96.0
1000 s: (91.0...99.0) Speed rpm : 1270...1300 4th rack travel in: 1350 rpm : 0.00...1.00 Speed cm3 : 10.00Spread 1000 s: (15.0) LOW IDLE 1 Control Lever position degrees: 10...18 **BREAKAWAY** Testing: Speed : 200 1st version rpm -Minimum rack trave: 6.30 1mm rack travel less than Speed rpm : 350 Rack travel in mm : 5.00...5.60 full load rack tr: 13.30 Rack travel in mm: 7.00 rpm : 1190...1200 Speed Speed : 250...0 rom : 500 Speed STARTING FUEL DELIVERY rpm Maximum rack trave: 3.00 Speed rpm : 100 Del.quantity cm3/ : 330.0...350.0 1000 s: (326.0...354.0) CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test Remarks: 1st version * = Set at reduced-delivery stop. Setting : 500 Speed rpm hPa : -Pressure Rack travel mm : 6.30...6.60 Measurement 1/min : 500Speed 1st pressure hPa : 400 Rack travel in m: 7.70...7.80 2nd pressure hPa : 1200 Rack travel in m: 11.90...12.20

START CUT-OUT

Note remarks

Test sheet : SCA 11,1 b : 31.03.89 : 10.2.89 Edition Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 836

Injection pump

Pump designation : PE6P12OA72ORS7126 : 0 412 626 815 EP type number

Governor

Governor design. : RQV200...1000PA725-1

Governer no. : 0 421 813 552

Customer-spec. information

Customer : SAAB-SCANIA

Engine : DSC11 18

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm : (4.95...5.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm: 4.5...4.9 Del.quantity cm3/: 1.5...1.9

100 s: (-)

cm3 : 0.3 Spread 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 225 1st speed

: 1.20...1.60 travel mm

2nd speed

rpm : 350 : 2.40...3.00 travel mm

rpm : 650 3rd speed

: 4.40...5.00 travel mm

rpm : 1045 4th speed

: 8.40...8.60 travel mm

rpm : 1160 5th speed : 9.90...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900 Del.quantity : 234.0...236.0 Del.quantity : 234.0...239.0)

CO1

: 6.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 59...67

Testing:

1st rack travel in: 13.10

Speed rpm : 1040...1050 2nd rack travel in: 4.00

Speed rpm : 1145...1175 4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 7...15

Testing:

: 100 Speed rpm Minimum rack trave: 6.10

rpm : 225 Speed

Rack travel in mm : 4.50...4.70

Rack travel in mm: 2.00

: 340...400 Speed rpm

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

Rack travel mm : 14.10...14.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.90

2nd pressure hPa : 575

Rack travel in m: 13.00...13.10

3rd pressure hPa : 405

Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 1000 Speed

Del.quantity cm3/: 223.0...231.0 1000 s: (221.0...233.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 150.0...154.0

1000 s: (148.0...156.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 275.0...325.0

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm

Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphraam.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania

on 1988-09-21

Start of delivery - engine: 13° before

TDC

Firing sequence of engine:

1-5-3-6-2-4.

Note remarks

: MB 11,0 t 2 : 03.03.89 : 25.3.88 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design. : RQV300...1050PA797-2

Governer no. : 0 421 813 614

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M441 LA Engine

: 240.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quartity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.90...14.10

Del.guantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.7...6.0 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.40 travel mm 2nd speed rpm : 600 travel mm : 4.90...5.10

3rd speed : 1075 rpm

travel mm : 7.40...7.60

: 1100 4th speed rpm

: 8.00...8.40 travel mm

: 1150 5th speed rpm

: 9.00...9.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

> Degree: -1 rpm : 1100

Speed Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 3rd pressure hPa : 1050 rpm : 600 Rack travel in m: 14.00...14.10 * Speed Aneroid pressure h: 900 4th pressure hPa : 1150 : 211.0...213.0 Rack travel in m: 14.40...14.60 Del.quantity 1000 : (208.0...216.0) 5th pressure hPa : : 5.00 Rack travel in m: 9.00...9.30 Spread cm3 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 220 (240) Speed 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 50...58 Testina: 1st version 1st rack travel in: 13.80 Aneroid pressure h: 1450 rpm : 1095...1110 Speed rpm : 1050 Del.quantity cm3/ : 236.0...239.0 Speed 2nd rack travel in: 4.00 1000 s: (233.0...242.0) rpm : 1170...1200 Speed 4th rack travel in: 1300 : 8.00 Spread cm3 rpm : 0.00...1.001000 s: (12.0) Speed Aneroid pressure h: 1450 LOW IDLE 1 rpm : 800 Speed Del.quantity cm3/: 242.0...246.0 1000 s: (239.0...249.0) Control lever position degrees: 15...23 cm3 : 8.00 1000 s: (12.0) Spread Testing: Aneroid pressure h: -Speed rom Minimum rack trave: 7.90 : 500 Speed rpm Del.quantity cm3/: 133.0...135.0 : 300 man Rack travel in mm : 5.70...6.00 1000 s: (130.0...138.0) cm3 : 8.00 Spread 1000 s: (12.0) CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL **BREAKAWAY** : 0.30 Dimension a mm 2nd speed rpm : 1050 1st version Rack travel in m: 14.80...15.00 1mm rack travel less than 3rd speed rpm : 800 Rack travel in m: 15.00...15.20 4th speed rpm : 700 full load rack tr: 13.80 rpm : 1095...1110 Speed Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test : 100 Speed rpm Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0) 1st version Setting : 600 Rack travel in mm : 200.00...220.00 Speed rpm hPa : 900 Pressure : 13.90...14.10 Rack travel mm Remarks: Measurement 1/min: 600 * Increase in control-rod travel with Speed respect to setting at least 0.1 mm 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.70...12.90

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks : SCA 9,0 m : 17.02.89 Test sheet Edition Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Replaces Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 402 646 853 BASIC SETTING Injection pump rpm: 700 Pump designation : PE6P120A320RS7138 1st speed EP type number : 0 412 626 822 Rack travel in mm : 12.20...12.30 Governor Governor design. : RQ200/1100PA873 Governer no. : 0 421 801 415 Del.quantity cm3/: 16.5...16.7 100 s: (16.2...17.0) Customer-spec. information Customer : SAAB-SCANIA cm3 : 0.6Spread : DS9 05 Engine 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 225.0 Rack travel in mm : 5.1...5.7 Test oil inlet temp. °C Del.quantity cm3/: 2.1...2.5 : 38...42 100 s: (-) cm3 : 0.3Overflow valve Spread : 1 417 413 025 100 s: (0.6) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: 48...50 : 1 688 901 019 rpm : 600 assembly Rack travel in mm : 15.20...17.80 Opening . pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version rpm : 700 diameter mm : 0,8 Speed Aneroid pressure h: 900 : 165.0...167.0 Del.quantity 1000 : (162.0...170.0) Test lines : 1 680 750 015 Spread cm3 : 6.00 Outside diameter 1000 : (9.00)x Wall thickness x Length mm : 6.00X1.50X600 RATED SPEED 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Setting point: Speed per values rpm Rack travel in mm: 16.5 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 11.20 Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed

rpm : 1275...1305

CO5

Prestroke mm

: 4.40...4.50 : (4.35...5.55)

Rack travel in mm : 9.00...12.00

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 225 Rack travel in mm: 5.0

Testing:

rpm : 100 Speed Minimum rack trave: 6.40 Speed rpm : 225

Rack travel in mm: 4.90...5.10
Rack travel in mm: 2.00
Speed rpm: 310...350

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 900 Pressure

Rack travel mm : 12.20...12.30

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...11.00 2nd pressure hPa : 360 Rack travel in m: 11.80...11.90

3rd pressure hPa : 240

Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 1100 Speed

Del.quantity cm3/: 163.0...171.0 1000 s: (161.0...173.0)

Aneroid pressure h: -

: 500 Speed rom

Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 270.0...320.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 225 Speed

Rack travel in mm : 4.90...5.10

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

APPLICATION

Omnibus

Note remarks

Test sheet : SCA 11,1 h Edition : 31.03.89 Replaces : 10.2.89

Test oil : ISO-4113

Combination no. : 0 402 646 858

Injection pump

Pump designation : PE6P120A720RS7151

EP type number : 0 412 626 824

Governor

Governor design. : RQ200/900PA713-4 : 0 421 801 424 Governer no.

Customer-spec. information

: SAAB-SCANIA Customer

: DSCII 04 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 : (4.35...4.55) Prestroke mm

Rack travel in mm : 9.00...12.00

CO7

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.70...12.80

Del.guantity cm3/: 17.4...17.6

100 s: (17.1...17.9)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 225.0 2nd speed

Rack travel in mm: 4.8...5.2 Del.quantity cm3/: 1.6...2.0

100 s: (-)

cm3 : 0.3Spread

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 225 : 1.20...1.60 travel mm

rpm : 350 2nd speed

: 2.80...3.40 travel mm

rpm : 650 3rd speed

: 3.70...4.30 travel mm : 950

4th speed rpm : 4.60...4.80 travel mm

5th speed : 1065 rpm

: 6.40...6.80 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Spread cm3

: 6.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 16.5

Testing:

1st rack travel in: 11.70 rpm : 945...960 Speed 2nd rack travel in: 4.00

rpm : 1050...1080 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm Rack travel in mm: 4.9

Testing:

rpm : 100 Speed Minimum rack trave: 6.40 Speed rpm : 225 Rack travel in mm : 4.80...5.00

Rack travel in mm : 2.00 Speed rpm : 310...350

Aneroid/Altitude Compensator Test

1st version Settina

: 500 Speed rom hPa : 900 Pressure

: 12.70...12.80 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 11.40...11.80

2nd pressure hPa : 395
Rack travel in m: 12.50...12.60
3rd pressure hPa : 345
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 900 Del.quantity cm3/ : 171.0...179.0 1000 s: (169.0...181.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 145.0...149.0 1000 s: (143.0...151.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 945...960 Speed

LOW IDLE

Speed rpm : 225 Rack travel in mm : 4.80...5.00

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 3.0...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphraam.

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over

on Sep. 5, 1988

Start of delivery - engine: 9° before

Firing sequence of engine:

1-5-3-6-2-4.

Omnibus

Note remarks

Test sheet : MB 14,7 a 1 : 24.02.89 Edition : 22.4.88 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 812

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQ300/1050PA717 : 0 421 801 258 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 LA

1st version kW : 320.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.0...22.2

100 s: (21.7...22.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.1...6.7 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 680

: 220.0...222.0 Del.quantity 1000 : (217.0...225.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rom

Rack travel in mm: 20.0 Testing: 1st rack travel in: 14.40 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm: 1160...1190 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 6.4 Testing: rpm : 200 Speed Minimum rack trave: 8.00 Speed rpm : 300
Rack travel in mm : 6.10...6.70
Rack travel in mm : 2.00 rpm : 380...420 Speed TORQUE CONTROL Dimension a mm : 0.90 2nd speed rpm : 1050 Rack travel in m: 15.20...15.40 3rd speed rpm : 850 Rack travel in m: 15.80...16.10 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 680 Pressure : 14.70...14.90 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 310 Rack travel in m: 12.10...12.30 2nd pressure hPa : 470 Rack travel in m: 13.70...13.90
3rd pressure hPa : 820
Rack travel in m: 14.90...15.00
4th pressure hPa : 1100 Rack travel in m: 15.90...16.00 5th pressure hPa Rack travel in m: 11.40...11.50 START CUT-OUT 1/min: 220 (240) Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.40 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

FUEL DELIVERY CHARACTERISTICS

Note remarks

: MB 14,7 a 4 : 28.11.88 : 27.10.88 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 648 817

Injection cump

Pump designation : PE8P120A320LS7801 : 0 412 628 806 EP type number

Governor

Governor design. : RQ300/1050PA762-5

Governer no. : 0 421 801 399

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 A

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)
Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 8

BASIC SETTING

1st speed 70m : 500

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 500 Speed Aneroid pressure h: 650 Del.quantity : 203.0...205.0

1000 : (200.0...208.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rom

Rack travel in mm: 20.0 FUEL DELIVERY CHARACTERISTICS Testina: 1st rack travel in: 11.80 1st version rpm : 1095...1110 Aneroid pressure h: 1050 Speed 2nd rack travel in: 4.00 rpm_ : 1050 Speed Del.quantity cm3/: 180.0...183.0 rpm : 1170...1200 Speed 4th rack travel in: 1300 1000 s: (177.0...186.0) rpm : 0.00...1.50 cm3 : 8.00Speed Spread 1000 s: (12.0) Aneroid pressure h: 1050 LOW IDLE 1 Setting point w/out bumper spring : 700 Speed rpm Del.quantity cm3/: 215.0...219.0 1000 s: (212.0...222.0) Speed MOM Rack travel in mm: 6.2 cm3 : 8.00Spread 1000 s: (12.0) Testing: Speed : 200 Aneroid pressure h: 1050 rpm Minimum rack trave: 8.00 Speed rpm : 850 Del.quantity cm3/: 206.0...210.0 : 300 rpm Rack travel in mm : 6.00...6.40 1000 s: (203.0...213.0) Rack travel in mm : 2.00 cm3 : 8.00 Spread rpm : 380...420 1000 s: (12.0) Speed Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0 TORQUE CONTROL : 0.75 Dimension a mm 2nd speed : 1050 1000 s: (146.0...154.0) rpm Rack travel in m: 12.80...13.00 cm3 : 8.00 Spread 1000 s: (12.0) rpm : 850 3rd speed Rack travel in m: 13.70...14.00 4th speed rpm: 700 Rack travel in m: 14.40...14.60 **BREAKAWAY** Aneroid/Altitude 1st version 1mm rack travel less than Compensator Test full load rack tr: 11.80 1st version rpm : 1095...1110 Speed Setting : 600 STARTING FUEL DELIVERY Speed rpm hPa : 650 Pressure : 14.10...14.30 Rack travel mm Speed rpm : 100 Del.quantity cm3/ : 175.0...190.0 1000 s: (171.0...194.0) Measurement 1/min: 600 Speed 1st pressure hPa : 300 Remarks: Rack travel in m: 12.40...12.60 2nd pressure hPa : 400 Rack travel in m: 13.40...13.70 * Increase in control-rod travel with 3rd pressure hPa : 850 respect to setting at Least 0.1 mm Rack travel in m: 14.20...14.30 * 4th pressure hPa : -Rack travel in m: 11.40...11.70 5th pressure hPa : 1050 Rack travel in m: 14.40...14.60 START CUT-OUT 1/min: 220 (240) Speed

Note remarks

Test sheet : MB 14,7 a 5 Edition : 29.03.89 : 3.3.89 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 825

Injection pump

Pump designation : PE8P120A320LS7801 EP type number : 0 412 628 806

Governor

Governor design. : RQV300..1050PA797-3

: 0 421 813 627 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 A

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 500

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.20...1.40 rpm : 600 2nd speed

: 4.90...5.10 travel mm

rpm : 1075 3rd speed

: 7.40...7.60 travel mm rpm : 1100 4th speed

: 8.00...8.20 travel mm

5th speed

rpm : 1150 : 9.00...9.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

2nd pressure hPa : 400 Rack travel in m: 13.40...13.70

3rd pressure hPa : 850

Rack travel in m: 14.20...14.30 * 1st version rpm : 500 Speed Aneroid pressure h: 650 Del.quantity : 203.0...208.0) 4th pressure hPa : -Rack travel in m: 11.30...11.60 : 5.00 Spread cm3 1000 : (9.00) START CUT-OUT Speed RATED SPEED 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 51...59 1st version Testing: Aneroid pressure h: 1050 rpm : 1050 1st rack travel in: 11.80 Speed Del.quantity cm3/: 180.0...183.0 Speed rpm : 1090...1100 1000 s: (177.0...186.0) 2nd rack travel in: 4.00 rpm : 1135...1185 Speed Spread cm3 : 8.00 4th rack travel in: 1300 1000 s: (12.0) Aneroid pressure h: 1050 Speed rpm : 700 rpm : 0.00...1.00 Speed Del.quantity cm3/: 215.0...219.0 1000 s: (212.0...222.0) LOW IDLE 1 Control lever position degrees: 13...21 cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1050 Testina: : 200 rom Speed : 850 rpm Del.quantity cm3/: 206.0...210.0 1000 s: (203.0...213.0) Minimum rack trave: 7.70 rpm : 300 Rack travel in mm : 6.00...6.40 cm3 : 8.00Spread 1000 s: (12.0) CONSTANT REGULATION Aneroid pressure h: rpm : 300...450 Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0 Speed TORQUE CONTROL 1000 s: (146.0...154.0) Dimension a mm cm3 : 8.00Spread 2nd speed rpm : 1050 1000 s: (12.0) Rack travel in m: 12.70...12.90 3rd speed rpm : 850 Rack travel in m: 13.70...14.00 4th speed rpm : 700 Rack travel in m: 14.30...14.50 BREAKAWAY 1st version 1mm rack travel less than Aneroid/Altitude full load rack tr: 11.80 Compensator Test rpm : 1090...1100 Speed STARTING FUEL DELIVERY 1st version Setting : 600 Speed CDM hPa : 650 Speed rpm : 100 Del.quantity cm3/ : 175.0...190.0 Pressure Rack travel mm : 14.10...14.30 1000 s: (171.0...194.0) Measurement 1/min: 600 Speed Remarks: 1st pressure hPa : 300 Rack travel in m: 12.40...12.60 * Increase in control-rod travel with

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA 14,2 i : 07.02.89 Edition Replaces : 20.11.87 Test oil : ISO-4113 Combination no. : 0 402 648 827 Injection pump Pump designation : PE8P120A920/4LS7016 EP type number : 0 412 628 814 Governor Governor design. : RQV200...950PA547-7 : 0 421 813 550 Governer no. Customer-spec. information : SCANIA Customer : DSC14 06 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening | : 207...210 pressure, bar Orifice plate diameter mm : 0.8 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

```
: 1- 2- 7- 3- 4- 5-
6-8
Firing order
Phasing
                  : 0-45-90-135-180-225-
                   270-315
Tolerance + - °
                  : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
              rpm: 700
1st speed
Rack travel in mm : 12.60...12.70
Del.quantity cm3/: 19.0...19.2
             100 s: (18.7...19.5)
Spread
             cm3 : 0.6
             100 s: (0.9)
             rpm : 225.0
2nd speed
Rack travel in mm: 4.9...5.4
Del.quantity cm3/: 1.6...2.0
             100 s: (1.3...2.3)
             cm3 : 0.3
Spread
             100 s: (0.6)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
            rpm : 225
1st speed
                  : 1.20...1.60
  travel mm
            rpm : 350 : 2.30...2.90
2nd speed
  travel mm
            rpm : 650
3rd speed
                 : 4.40...5.00
  travel mm
            rpm : 995
4th speed
                 : 7.80...8.00
  travel mm
             rpm : 1105
5th speed
                 : 9.10...9.50
  travel mm
GUIDE SLEEVE POSITION
Control-Lever position
           Degree: -1 rpm : 1030
Speed
Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
            rpm : 700
Speed
Aneroid pressure h: 900
```

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 5.00...5.10

: (4.95...5.15)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 11.60 rpm : 990...1000 Speed 2nd rack travel in: 4.00

rom : 1090...1120

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 7...15

Testing:

: 100 Speed rpm Minimum rack trave: 6.50 : 225 Speed rpm

Rack travel in mm : 4.90...5.10

Rack travel in mm: 2.00 Speed : 360...420 rpm

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 500 rpm hPa : 900 Pressure

: 12.60...12.70 Rack travel mm

Measurement

1/min : 500Speed

1st pressure hPa : -

Rack travel in m: 11.10...11.50

2nd pressure hPa : 215

Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm

Del.quantity cm3/: 184.0...192.0 1000 s: (182.0...194.0)

Aneroid pressure h: -

: 500 rpm

Del.quantity cm3/: 158.0...162.0 1000 s: (156.0...164.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

: 100 Speed rom

Del.quantity cm3/: 240.0...290.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm

Rack travel in mm : 4.90...5.10

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on 1986-09-16

Start of delivery - engine: 17° before

Engine firing sequence: 1-5-4-2-6-3-7-8

Note remarks

Test sheet : MB 14,7 a 9 Edition : 28.04.89 : 2.12.86 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 842

Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

Governor

Governor design. : RQV350..950PA866-2 : 0 421 813 673 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 A

1st version kW : 275.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 8

BASIC SETTING

rpm: 930 1st speed

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.0...5.5 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.60...0.80 travel mm

rpm : 425 2nd speed

: 2.40...2.60 travel mm

rpm : 800 3rd speed

: 5.30...5.60 travel mm rpm : 1000

4th speed

: 7.80...8.20 travel mm

rpm : 1120 5th speed

: 9.50...10.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : ? Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 930 Speed Aneroid pressure h: 950 Del.quantity : 211.0...23.0 1000 : (208.0...216.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 60...68 Testing: 1st rack travel in: 12.50 Speed rpm : 980...990 2nd rack travel in: 4.00 Speed rpm : 1080...1110 4th rack travel in: 1300 rom : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 8...16 Testing: rpm : 250 Speed Minimum rack trave: 7.60 rpm Rack travel in mm : 5.00...5.50 CONSTANT REGULATION rpm : 350...500 Speed TORQUE CONTROL Dimension a mm : 1.10 Torque control curve - 1st version rpm : 950 1st speed Rack travel in m: 13.50...13.60 rpm : 800 2nd speed Rack travel in m: 14.60...14.80 3rd speed rpm : 875 Rack travel in m: 13.80...14.00 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rom hPa: -Pressure : 10.50...10.90 Rack travel mm

START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 950 : 800 Speed rpm Del.quantity cm3/: 233.0...237.0 1000 s: (230.0...240.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 950 : 930 Speed rom Del.quantity cm3/: 167.0...169.0 * 1000 s: (164.0...172.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.50 rpm : 980...990 Speed STARTING FUEL DELIVERY Speed rpm Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0) Remarks: * = Set at reduced-delivery stop.

Rack travel in m: 11.30...11.50

Rack travel in m: 13.40...13.60

2nd pressure hPa : 700

C19

Speed

Measurement

1/min : 600

1st pressure hPa : 450

Note remarks

Test sheet : MAN 14,5 e : 07.04.89 Edition : 4.11.88 Replaces Test oil : ISO-4113

: 0 402 648 851 Combination no.

Injection pump

Pump designation : PE8P120A520LS7818 : 0 412 628 830 EP type number

Governor

Governor design. : RQV250...1150PA902 Governor no. : 0 421 813 720

Customer-spec. information : MAN Customer

Engine : D2848LXE 40

1st version kW : 500.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60 (4.45...4.65)

9.00...12.00 8- 7- 2- 6- 3- 5-Rack travel in mm: Firing order

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 13.50...13.60

Del.guantity cm3/: 28.9...29.1

100 s: (28.6...29.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250 2nd speed

Rack travel in mm: 7.30...7.50 Del.quantity cm3/ : 5.2...6.0 *

100 s: (-)

rpm : 500 3rd speed

Rack travel in mm : 8.20...8.40

Del.quantity cm3/ : <125.0 ** 100 s: (-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 1.40...1.60 travel mm

2nd speed rpm : 450

: 3.40...4.00 travel mm

rpm : 850 3rd speed

: 6.30...6.90 : 1150 travel mm

4th speed rpm

: 9.40...9.60 travel mm

5th speed : 1450 rpm

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1210 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rom : 1150 Speed

Aneroid pressure h: 1300 Del.quantity : 289.0...291.0

Del.quantity : 289.0...294.0)

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 12.50

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1280...1310 Speed

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 19...27

Testing:

Speed : 100 rpm Minimum rack trave: 8.90 rpm : 250

Rack travel in mm : 7.30...7.50

Rack travel in mm : 2.00

rpm : 430...490 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed LDW hPa : 1300 Pressure

Rack travel mm : 13.50...13.60

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 100 Rack travel in m: 9.30...9.40

3rd pressure hPa : 470

Rack travel in m: 11.90...12.20

START CUT-OUT

1/min: 200 (220) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 149.0...151.0
1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 100.0...120.0 * 1000 s: (-)

LOW IDLE

Speed rpm : 500 Rack travel in mm: <7.50 Del.quantity cm3/ : <50.0 **

1000 s: (-)

Remarks:

: MAN-NR. 2-7944

* applies to cylinders 2, 3, 4 and 8 ** applies for cylinders 1, 5, 6, and 7

APPLICATION

Ship

Note remarks

Test sheet : SCA 11,1 p : 29.03.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 852

Injection pump

Pump designation : PE8P120A920/4LS7166

EP type number : 0 412 628 832

Governor

Governor design. : RQ750PA758-2 : 0 421 801 462 Governer no.

Customer-spec. information

Customer : SAAB-SCANIA

: DS 14 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 : (4.95...5.15) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-2-7-3-4-5-6-8 Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 700

Rack travel in mm : 12.50...12.60

Del.guantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

cm3 : 0.7Spread

100 s: (1.0)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 252.0...254.0 Del.quantity

1000 : (249.0...257.0)

: 7.00 Spread cm3

1000 : (10.00)

RATED SPEED

1st version

Control lever

position degrees: 26...34

Testing:

1st rack travel in: 11.50

Speed rpm : 750...755 2nd rack travel in: 4.00

Speed rpm : 784...797 4th rack travel in: 850

rpm : 0.00...1.00Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 750...755 Speed

HIGH IDLE

1st version

C22

Rack travel in mm : 5.00...5.20 Spread cm3 : 4.00 1000 s: (7.00)

Remarks:

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

APPLICATION

Generator

Generator set

Note remarks

: FIA 17,2 e Test sheet : 29.03.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 854

Injection pump

Pump designation : PE8P130A920/5LS7822

: 0 412 638 802 EP type number

Governor

Governor design. : RQV300...950PA905

: 0 421 813 723 Governer no.

Customer-spec. information

: IVECO-FIAT Customer

: 8280.42.001 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

: 1 688 750 074 Test Lines

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.10...5.20 Prestroke mm : (5.05...5.25)

Rack travel in mm : 9.00...12.00

: 1-8-4-3-6-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 550

Rack travel in mm : 11.70...11.80

Del.guantity cm3/: 22.5...22.8

100 s: (22.1...23.1)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 300.02nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.7...2.3

100 s: (1.3...2.7) cm3 : 1.0 Spread

100 s: (1.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.40 travel mm

2nd speed rpm : 425

: 3.20...3.80 travel mm

3rd speed rpm : 650

: 4.90...5.50 travel mm rpm : 950 4th speed

: 7.90...8.10 travel mm

rpm : 1200 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 975 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 900

Del.quantity : 223.0...231.5)

C24

Spread cm3 : 6.00

1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 57...65

Testina:

1st rack travel in: 10.70 Speed rpm : 990...1000 2nd rack travel in: 4.00

rpm : 1075...1105 Speed

4th rack travel in: 1200

rom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

: 100 Speed rpm Minimum rack trave: 7.20 rpm : 300

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 320...425

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 hPa : 900 Pressure

: 11.70...11.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 440

Rack travel in m: 11.10...11.20

3rd pressure hPa : 400

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 950 Speed

tel.quantity cm3/: 222.0...229.0 1000 s: (218.5...232.5)

Aneroid pressure h: -

Speed rom : 500 Del.quantity cm3/: 168.0...171.0

1000 s: (164.5...174.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 990...1000 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...230.0 1000 s: (196.0...234.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 17.0...23.0 1000 s: (13.0...27.0) Spread cm3 : 10.00 1000 s: (14.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : MB 14,7 o : 29.03.89 : 7.2.89 Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 648 855

Injection pump

Pump designation : PE8P120A320LS7823 EP type number : 0 412 628 835

Governor

Governor design. : RQV350..1050PA870-5

: 0 421 813 735 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442 LA

: 353.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm: 5.0...5.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.90...2.10 travel mm

rpm : 800 2nd speed

: 4.90...5.20 travel mm

rpm : 1100 3rd speed

travel mm : 7.90...8.30

rpm : 1175 4th speed

: 9.30...9.90 travel mm

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900 : 234.0...237.0 Del.quantity 1000 : (231.0...240.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testing: 1st rack travel in: 13.40 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 18...26 Testing: Speed rpm : 250 Minimum rack trave: 7.10 rpm : 350 Speed Rack travel in mm : 5.00...5.60 CONSTANT REGULATION rpm : 350...550 Speed TORQUE CONTROL Dimension a mm : 0.50 rpm : 1050 2nd speed Rack travel in m: 14.40...14.60 3rd speed rpm : 800 Rack travel in m: 14.90...15.10 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 900 Pressure : 13.60...13.80 Rack travel mm

Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 11.10...11.30 2nd pressure hPa : 1050

Rack travel in m: 13.70...13.90

Rack travel in m: 14.50...14.70

3rd pressure hPa : 1250

4th pressure hPa : 1400 Rack travel in m: 14.80...15.00 5th pressure hPa : Rack travel in m: 9.90...10.20 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 Speed rpm : 1050 Del.quantity cm3/ : 252.0...256.0 1000 s: (249.0...259.0) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: 1600 Speed rpm : 800 Del.quantity cm3/ : 263.0...267.0 1000 s: (260.0...270.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.40

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 14,7 p Test sheet Edition : 29.03.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 858

Injection pump

Pump designation : PE8P120A320LS7816-10

EP type number : 0 412 628 836

Governor

Governor design: RQ300/1050PA717-2

: 0 421 801 439 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 LA Engine

: 353.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 8

BASIC SETTING

rom: 600 1st speed

Rack travel in mm : 13.60...13.80

Del.guantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.5 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

: 234.0...237.0 Del.quantity 1000 : (231.0...240.0)

cm3 : 6.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 20.0 1st version Testina: Aneroid pressure h: 1600 1st rack travel in: 13.40 Speed rpm : 1050 Del.quantity cm3/: 252.0...256.0 Speed rpm : 1095...1110 1000 s: (249.0...259.0) 2nd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1300 : 8.00 Spread cm3 1000 s: (12.0) Speed rpm : 0.00...1.50Aneroid pressure h: 1600 : 800 Speed rpm Del.quantity cm3/: 263.0...267.0 LOW IDLE 1 1000 s: (260.0...270.0) Setting point w/out bumper spring : 300 cm3 : 8.00Spread COM Rack travel in mm: 6.2 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 145.0...147.0
1000 s: (142.0...150.0) Testing: speed rpm : 200 Minimum rack trave: 7.80 Speed Speed rpm : 300 Rack travel in mm : 5.90...6.50 Rack travel in mm : 2.00 Spread cm3 : 8.00 1000 s: (12.0) : 380...420 Speed rom **BREAKAWAY** TORQUE CONTROL Dimension a mm : 0.40 1st version nd speed rpm : 1050 Rack travel in m: 14.40...14.60 2nd speed 1mm rack travel less than full load rack tr: 13.40 3rd speed rpm : 800 rpm : 1095...1110 Rack travel in m: 14.90...15.10 Speed Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0) 1st version Setting : 600 Speed rom hPa : 900 Pressure Remarks: : 13.60...13.80 Rack travel mm Measurement * Increase in control-rod trayel with 1/min: 600 respect to setting at least 0.1 mm Speed 1st pressure hPa : 350 Rack travel in m: 11.10...11.30 2nd pressure hPa : 650 Rack travel in m: 12.80...13.00 3rd pressure hPa : 1050 Rack travel in m: 13.70...13.90 * 4th pressure hPa : 1500 Rack travel in m: 14.80...15.00 5th pressure hPa : -Rack travel in m: 9.90...10.20 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet : MB 14,7 a11 : 14.04.89 Edition : 3.3.89 Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 859

Injection pump

Pump designation: PE8P12OA32OLS78O1-1

EP type number : 0 412 628 818

Governor

Governor design. : RQV350..950PA866-4

: 0 421 813 737 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 A Engine

1st version kW : 264.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SEITING

rpm: 930 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm: 5.0...5.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.40...1.60 travel mm

rpm : 425 2nd speed

travel mm : 2.40...2.60

3rd speed rpm : 800

: 5.30...5.60 travel mm

rpm : 1000 4th speed

: 7.80...8.20 travel mm

rpm : 1100 5th speed

: 9.40...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1000 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 930 Speed Aneroid pressure h: 950 : 206.0...208.0 Del.quantity 1000 : (203.0...211.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 51...59 Testing: 1st rack travel in: 12.00 Speed rpm : 980...990 2nd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 18...26 Testing: : 250 Speed rpm Minimum rack trave: 7.60 : 350 rom Rack travel in mm : 5.00...5.50 CONSTANT REGULATION rpm : 350...550 Speed TORQUE CONTROL Dimension a mm : 1.70 Torque control curve - 1st version 1st speed rpm : 950 Rack travel in m: 12.90...13.10 2nd speed rpm : 800 Rack travel in m: 14.60...14.80 3rd speed rpm : 900 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed Pressure hPa : -Rack travel mm : 10.90...11.30 Measurement 1/min: 600 Speed 1st pressure hPa : 450

003

Rack travel in m: 11.70...11.90 2nd pressure hPa : 700 Rack travel in m: 13.80...14.00 START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 950 Speed rpm Del.quantity cm3/: 229.0...233.0 1000 s: (226.0...236.0) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: 950 Speed rpm Del.quantity cm3/: 167.0...169.0 * 1000 s: (164.0...172.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 980...990 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0) Remarks: * = Set at reduced-delivery stop. APPLICATION Special-purpose vehicle

Note remarks

Test sheet : MB 14,7 a12 Edition : 29.03.89

Replaces

: TSO-4113 Test oil

Combination no. : 0 402 648 862

Injection pump

Pump designation : PE8P120A320LS7801-3

: 0 412 628 838 EP type number

Governor

Governor design. : RQ300/1050PA762-5

: 0 421 801 399 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M442 A

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 500

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 500 Speed Aneroid pressure h: 650

: 203.0...205.0 Del.quantity 1000 : (200.0...208.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rom

Rack travel in mm: 20.0 1st version Aneroid pressure h: 1050 Speed rpm : 1050 Del.quantity cm3/: 180.0...183.0 Testing: 1st rack travel in: 11.80 rpm : 1095...1110 Speed 1000 s: (177.0...186.0) 2nd rack travel in: 4.00 rpm : 1170...1200 cm3 : 8.00Speed Spread 4th rack travel in: 1300 1000 s: (12.0) Aneroid pressure h: 1050 rom : 0.00...1.50Speed Speed rpm : 700 Del.quantity cm3/ : 215.0...219.0 1000 s: (212.0...222.0) LOW IDLE 1 Setting point w/out bumper spring cm3 : 8.00riom Spread Rack travel in mm : 6.2 1000 s: (12.0) Aneroid pressure h: 1050 Speed rpm : 850 Del.quantity cm3/ : 206.0...210.0 1000 s: (203.0...213.0) Testing: Speed : 200 rpm Minimum rack trave: 8.00 : 300 cm3 : 8.00 Speed rom Spread Rack travel in mm : 6.00...6.40 Rack travel in mm : 2.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 149.0...151.0 : 380...420 Speed rom 1000 s: (146.0...154.0) TORQUE CONTROL cm3 : 8.00 Dimension a mm : 0.75 Spread 2nd speed rpm : 1050 1000 s: (12.0) Rack travel in m: 12.80...13.00 3rd speed rpm : 850 Rack travel in m: 13.70...14.00 4th speed rpm : 700 Rack travel in m: 14.40...14.60 BREAKAWAY 1st version 1mm rack travel less than Aneroid/Altitude Compensator Test full load rack tr: 11.80 rpm : 1095...1110 Speed 1st version STARTING FUEL DELIVERY Setting Speed rpm : 600 : 100 hPa : 650 Pressure Speed rpm : 14.10...14.30 Del.quantity cm3/: 175.0...190.0 Rack travel mm 1000 s: (171.0...194.0) Measurement 1/min: 600 Remarks: Speed 1st pressure hPa : 300 Rack travel in m: 12.40...12.60 2nd pressure hPa : 400 Rack travel in m: 13.40...13.70 * Increase in control-rod travel with respect to setting at least 0.1 mm 3rd pressure hPa : 850 Rack travel in m: 14.20...14.30 * 4th pressure hPa Rack travel in m: 11.40...11.70 START CUT-OUT 1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet : MB 14,7 a Edition : 11.05.89

Replaces Test oil

: ISO-4113

: 0 402 648 864 Combination no.

Injection pump

Pump designation : PE8P120A320LS7816 : 0 412 628 829 EP type number

Governor

Governor design. : RQ300/950PA762-7

Governer no.

: 0 421 801 480

Customer-spec. information

Customer

: DAIMLER-BENZ

: 0M442 LA Engine

: 353.0 : 1900 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temc. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test Lines

Outside diameter x Wall thickness

: 6.00x1.50x1000

x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 13.60...13.80

Del.quantity cm3/: 23.4...23.7

100 s: (23.1...24.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.5

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 2.00...2.40 travel mm 2nd speed rpm : 600

: 5.90...6.10 travel mm

rpm : 950 3rd speed

: 6.20...6.50 travel mm

rpm : 1020 4th speed

: 6.50...6.90 rpm : 1075 travel mm

5th speed

: 9.00...9.50 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 900 : 234.0...237.0 Del.quantity 1000 : (231.0...240.0) Spread cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version Setting point: : 600 Speed rpm Rack travel in mm: 20.0 Testina: 1st rack travel in: 13.70 rpm : 995...910 Speed 2nd rack travel in: 4.00 rpm : 1050...1080 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.2 Testing: rpm : 200 Speed Minimum rack trave: 7.80 rpm : 300 Speed Rack travel in mm: 5.90...6.50 Rack travel in mm: 2.00 Speed rpm: 380...420 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm hPa : 900 Pressure Rack travel mm : 13.60...13.80 Measurement $1/\min : 600$ Speed 1st pressure hPa : 350 Rack travel in m: 11.10...11.30
2nd pressure hPa : 650
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1055
Rack travel in m: 16.70...16.90

START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 rpm : 950 Speed Del.quantity cm3/: 261.0...264.0 1000 s: (258.0...267.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1600 Speed rpm : 800 Del.quantity cm3/ : 263.0...267.0 1000 s: (260.0...270.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 995...910 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Rack travel in m: 9.90...10.20

4th pressure hPa : 1500

5th pressure hPa : -

Rack travel in m: 14.80...15.00

Note remarks

: MB 21,9 j 1 : 07.02.89 Test sheet Edition Replaces : 18.9.87 Test oil : ISO-4113

: 0 402 670 804 Combination no.

Injection pump

Pump designation: PE12P120A320LS7813-1

: 0 412 620 811 EP type number

Governor

Governor design. : RSV350...750P0A825-5

: 0 421 833 277 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : OM 444 LA

1st version kW : 441.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 057

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 19.00...21.00 Firing order : 12-1-5-9-8-3-4-11-10-2-6-7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 12

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 15.90...16.00

Del.quantity cm3/: 26.7...26.9

100 s: (26.4...27.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.02nd speed

Rack travel in mm: 5.1...5.3 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 267.0...269.0 Del.quantity

1000 : (264.0...272.0)

: 5.00 Spread cm3

: (9,00) 1000

RATED SPEED

1st version

Control lever

position degrees: 20...28

Testing:

1st rack travel in: 14.90 Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm: 775...788 4th rack travel in: 900 Speed rpm: 0.30...1.70

LOW IDLE 1 Control Lever

position degrees: 9...17

Setting point w/out bumper spring

Speed rpm : 350
Rack travel in mm : 5.2
Speed rpm : 350
Rack travel in mm : 5.10...5.30

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

Observe VDT-I-420/120

APPLICATION

Generator

Note remarks

Test sheet Edition : SCA 14,2 c : 05.06.87 : 10.84

Replaces Test oil : ISO-4113

Combination no. : 0 402 678 800

Injection pump

Pump designation : PE8P120A920/4LS7002

EP type number : 0 412 628 800

Governor

Governor design. : RSV350...1100P1/484

: 0 421 833 122 Governer no.

Customer-spec. information

: SAAB-SCANIA Customer

: DS14... DSI14... Engine

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Openina .

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm : (4.95...5.15) Rack travel in mm : 9.00...12.00

D10

: 1- 2- 7- 3- 4- 5-6- 8 Firing order

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 700

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 18.7...18.9

100 s: (18.4...19.2)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 350.02nd speed

Rack travel in mm : 4.4...4.6 Del.quantity cm3/ : 1.0...1.4

100 s: (-)

cm3 : 0.3Spread

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 187.0...189.0 Del.quantity

1000 : (184.0...192.0)

: 6.00 : (9.00) Spread cm3 1000

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 12.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1170...1200 4th rack travel in: 1300

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control Lever

position degrees: 27...35 Setting point w/out bumper spring

Speed : 350 rpm Rack travel in mm: 4.0

Speed rpm : 350
Rack travel in mm : 3.90...4.10
Rack travel in mm : 2.00 Speed man : 440...500

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 1000 rpm

Del.quantity cm3/: 184.0...192.0 1000 s: (182.0...194.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...290.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 10.0...14.0

cm3 : 3.00Spread

1000 s: (6.00)

Remarks:

Delivery—valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on August 29, 1983

Start of delivery - engine: DS 14 - 18° before TDC DSI 14 - 17° before TDC

Engine firing sequence: 1-5-4-2-6-3-7-8

Navy

Note remarks

Test sheet : MB 14,7 a13 Edition : 30.03.87

Replaces

Test oil : ISO-4113

Combination no. : 0 402 678 804

Injection pump

Pump designation : PE8P120A320LS7801-1

: 0 412 628 818 EP type number

Governor

Governor design. : RSV350...1050P0A825-

: 0 421 833 261 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442A Engine

: 255.0 1st version kW Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (4.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 15.70...15.80

Del.guantity cm3/: 24.1...24.3

100 s: (23.8...24.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 241.0...243.0 Del.quantity

1000 : (238.0...246.0) cm3 : 5.00

Spread

: (9.00) 1000

RATED SPEED

1st version

D12

Control lever position degrees: 74...82 Testing: 1st rack travel in: 14.70 Speed rpm : 750...755 2nd rack travel in: 4.00 rpm : 1135...1150 Speed 4th rack travel in: 1400 Speed rpm: 0.30...1.40 LOW IDLE 1 Control lever position degrees: 60...68 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.3 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 350
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00 rpm : 350...410 SET IDLE AUXILIARY SPRING Speed rpm : 2.00 TORQUE CONTROL rpm : 900 2nd speed Rack travel in m: 13.20...13.40 3rd speed rpm : 1000 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 246.0...252.0 1000 s: (243.0...255.0) cm3 : 8.00Spread 1000 s: (12.0) STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 250.0...270.0 1000 s: (246.0...274.0) Remarks: APPLICATION

D13

Generator

Note remarks

Test sheet : MB 14,7 g 5 : 21.04.89 Edition : 9.9.88 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 678 810

Injection pump

Pump designation : PE8P120A320LS7801-2

EP type number : 0 412 628 825

Governor

Governor design. : RSV450...1050P0A541

: 0 421 833 303 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442A

: 260.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (4.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 450.0 2nd speed

Rack travel in mm : 4.9...5.2 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed Aneroid pressure n: 1100

: 181.0...183.0 1000 : (178.0...186.0) cm3 : 5.00 Del.quantity

Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 38...46 Testing: 1st rack travel in: 11.70 rpm : 1060...1070 Speed 2nd rack travel in: 4.00 rpm : 1110...1130 Speed 4th rack travel in: 1400 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 450 Rack travel in mm: 5.0 Testing: Speed rpm : 100 Minimum rack trave: 19.50 : 450 Speed rpm Rack travel in mm : 4.90...5.20 Rack travel in mm : 2.00 : 460...520 Speed rpm SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 12.70...12.80 rpm : 950 2nd speed Rack travel in m: 13.10...13.30 3rd speed rpm : 800 Rack travel in m: 13.80...14.00 4th speed rpm : 700 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : : 11.00...11.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 420

Rack travel in m: 11.70...11.90

Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

2nd pressure hPa : 600

1st version Aneroid pressure h: 1100 : 700 Speed rpm Del.quantity cm3/: 213.0...217.0 1000 s: (210.0...220.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 11.70 Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 180.0...200.0 1000 s: (176.0...204.0)

Remarks:

APPLICATION

Forage harvester

Note remarks

Test sheet : MB 14,7 r : 29.03.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 678 812

Injection pump

Pump designation : PE8P120A320LS7801-2

EP type number : 0 412 628 825

Governor

Governor design. : RSV350...1050P0A535-

Governer no. : 0 421 833 318

Customer—spec. information

Customer : DAIMLER-BENZ

Engine : 0M442A

1st version kW : 260.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 1030 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 18.1...18.3

100 s: (17.8...18.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.02nd speed

Rack travel in mm: 5.1...5.4

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed Aneroid pressure h: 1100

Del.quantity : 181.0...183.0

1000 : (178.0...186.0)

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED

1st version Control lever position degrees: 36...44 Testing: 1st rack travel in: 11.70 rpm : 1070...1080 Speed 2nd rack travel in: 4.00

Speed rpm : 1130...1160 4th rack travel in: 1400 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 13...21 Setting point w/out bumper spring

Speed rpm: 350 Rack travel in mm: 5.2

Testina:

rpm : 100 Speed Minimum rack trave: 19.50 rom : 350 Speed Rack travel in mm : 5.10...5.40 Rack travel in mm: 2.00 Speed rpm : 410...480

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL Torque control curve - 1st version

1st speed rpm : 1030

Rack travel in m: 12.80...12.90

2nd speed rpm : 950 Rack travel in m: 13.10...13.30

3rd speed rpm : 830

Rack travel in m: 13.80...14.00

4th speed rpm : 700

Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed hPa : -Pressure

Rack travel mm : 11.20...11.50

Measurement

1/min: 500 Speed

1st pressure hPa : 420

Rack travel in m: 11.90...12.10

2nd pressure hPa : 600

Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

017

1st version

Aneroid pressure h: 1100

Speed rpm : 700
Del.quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0)

Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.70

rpm : 1070...1080 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0

1000 s: (176.0...204.0)

Remarks:

Observe VDT-I-420/120

APPLICATION

Snow plough

Note remarks

Test sheet : MB 10,0 m Edition : 14.04.89 Replaces : 7.10.88 Test oil : ISO-4113

: 0 402 745 805 Combination no.

Injection pump

Pump designation : PES5P120A720LS7160

EP type number Governor

: 0 412 725 802

Governor design. : RQ300/1050PA774-2

Governer no.

: 0 421 801 450

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M449 A

: 184.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)
Rack travel in mm : 20.00...21.00

Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.7...6.3 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm: 600 Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 650

Del.quantity : 196.0...198.0 1000 : (193.0...201.0)

Spread cm3

: 5.00 1000

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 20.0

Testing: 1st rack travel in: 12.60 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 Speed rom : 0.00...1.50 LOW IDLE 1 Setting point wout bumper spring rpm : 300 Speed Rack travel in mm: 6.0 Testing: Speed : 200 rpm Minimum rack trave: 7.90 : 300 rpm Rack travel in mm : 5.70...6.30 Rack travel in mm : 2.00 : 365...405 Speed rom TORQUE CONTROL Dimension a mm Torque control curve – 1st version rpm : 1050 1st speed Rack travel in m: 13.60...13.80 2nd speed rpm : 750 Rack travel in m: 14.00...14.20 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 650 Pressure Rack travel mm : 13.10...13.30 Measurement Speed 1/min: 600 1st pressure hPa : 250 Rack travel in m: 11.20...11.40 2nd pressure hPa : 400 Rack travel in m: 12.50...12.70 3rd pressure hPa : 750 Rack travel in m: 13.20...13.30 * 4th pressure hPa : 850 Rack travel in m: 13.60...13.80 5th pressure hPa

Rack travel in m: 10.80...11.10

FUEL DELIVERY CHARACTERISTICS

1/min: 220 (240)

1st version Aneroid pressure h: 1200 : 1050 Speed rpm Del.quantity cm3/: 208.0...211.0 1000 s: (205.0...214.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 : 750 Speed rpm Del.quantity cm3/: 216.0...220.0 1000 s: (213.0...223.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 150.0...152.0 1000 s: (147.0...155.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.60 rpm : 1095...1110 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

START CUT-OUT

Note remarks

Test sheet : MBN 10,0 o Edition : 29.03.89 : 3.3.89 Replaces Test oil : ISO-4113

Combination no. : 0 402 745 806

Injection pump

Pump designation : PES5P120A720LS7163 EP type number

: 0 412 725 803

Governor

Governor design. : RQ300/1050PA774-4 : 0 421 801 453 Governer no.

Customer spec. information

Customer : DAIMLER-BENZ

Engine : 0M449 LA

: 221.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 1-3-5-4-2

Firing order

: 0-72-144-216-288 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 13.60...13.80

Del.quantity cm3/: 23.5...23.7

100 s: (23.2...24.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity

: 235.0...237.0 1000 : (232.0...240.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing: 1st rack travel in: 12.00 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 rom : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 5.7 Testing: Speed rpm : 200 Minimum rack trave: 7.60 Speed rpm : 300
Rack travel in mm : 5.60...5.90
Rack travel in mm : 2.00 : 370...410 Speed rom TORQUE CONTROL Dimension a mm : 0.65 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.00...13.20 2nd speed rpm : 750 Rack travel in m: 14.40...14.60 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 800 Rack travel mm : 13.60...13.80 Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 11.00...11.20 2nd pressure hPa : 450 Rack travel in m: 13.00...13.20 3rd pressure hPa : 1000 Rack travel in m: 13.70...13.80 * 4th pressure hPa : 1125 Rack travel in m: 14.10...14.30 5th pressure hPa : -

Rack travel in m: 10.00...10.40

FUEL DELIVERY CHARACTERISTICS

1/min: 220 (240)

1st version Aneroid pressure h: 1400 : 1050 Speed rpm Del.quantity cm3/: 228.0...231.0 1000 s: (225.0...234.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 1400 Speed rpm Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 146.0...148.0 1000 s: (143.0...151.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.00 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

START CUT-OUT

Note remarks

: MB 10,0 r Test sheet Edition : 08.05.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 745 807

Injection pump

Pump designation : PES5P120A720LS7174

EP type number : 0 412 725 806

Governor

Governor design. : RQ300/1050PA774-2 Governer no. : 0 421 801 450

Customer-spec. information : DAIMLER-BENZ Customer

: 0M449 A Engine

1st version kW : 184.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 1-3-5-4-2 Firing order

Phasina : 0-72-144-216-288

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.10...13.30

Del.quantity cm3/: 19.6...19.8

100 s: (19.3...20.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.7...6.3 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 650

Del.quantity : 190.0...201.0)

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

Testing: 1st rack travel in: 12.60 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1300 Speed rom : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring : 300 Speed rpm : 300 Rack travel in mm : 6.0 Testing: Speed rpm : 200 Minimum rack trave: 7.90 : 300 rpm Rack travel in mm : 5.70...6.30 Rack travel in mm : 2.00 : 365...405 Speed rom TORQUE CON ROL Dimension a mm :? Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 13.60...13.80 2nd speed rpm : 750 Rack travel in m: 14.00...14.20 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 650 Pressure : 13.10...13.30 Rack travel mm Measurement 1/min : 600 Speed 1st pressure hPa : 250 Rack travel in m: 11.20...11.40 2nd pressure hPa : 400 Rack travel in m: 12.50...12.70

3rd pressure hPa : 750

Rack travel in m: 13.20...13.30 * 4th pressure hPa : 850 Rack travel in m: 13.60...13.80

1st version Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/ : 208.0...211.0 1000 s: (205.0...214.0) cm3 : 8.00Spread 1000 s: (12.) Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 216.0...220.0 1000 s: (213.0...223.0) Spread cm3 : 8.00 1000 s: (12.00 Speed rpm : 500 Del.quantity cm3/: 150.0...152.0 1000 s: (147.0...155.0) Spread cm3 : 8.001000 s: (12.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.60 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Speed rpm : 100

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Del.quantity cm3/: 220.0...240.0

1000 s: (216.0...244.0)

Speed

5th pressure hPa

START CUT-OUT

Rack travel in m: 10.80...11.10

FUEL DELIVERY CHARACTERISTICS

1/min: 220 (240)

Note remarks

Test sheet : MB 10,0 s Edition : 08.05.89

Replaces

Test oil : ISO-4113

Combination no. : 0 402 745 808

Injection pump

Pump designation : PES5P120A720LS7163

: 0 412 725 807 EP type number

Governor

Governor design: RQ300/1050PA774-4

: 0 421 801 453 Governer no.

Customer—spec. information

: DAIMLER-BENZ Customer

: 0M449 LA Engine

1st version kW : 221.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow.

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test Lines

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.60...13.80

Del.guantity cm3/: 23.5...23.7

100 s: (23.2...24.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 800

Del.quantity : 235.0...237.0 1000 : (232.0...240.0)

Spread cm3

: 5.00 : (9.00) 1000

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 20.0 Testina:

1st rack travel in: 12.00

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

Speed rpm: 1160...1190 4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300

Rack travel in mm: 5.7

Testing:

Speed rpm : 200

Minimum rack trave: 7.60

: 300 Speed rpm

Rack travel in mm : 5.60...5.90 Rack travel in mm : 2.00

: 370...410 Speed non

TORQUE CONTROL

Dimension a mm : 0.65

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: <u>13.00...13.20</u>

2nd speed rpm : 750

Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm Pressure hPa : 800

: 13.60...13.80 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : 200 Rack travel in m: 10.00...11.20

2nd pressure hPa : 450

Rack travel in m: 134.00...13.20

3rd pressure hPa : 1000

Rack travel in m: 13.70...13.80 *

4th pressure hPa : 1125

Rack travel in m: 14.10...14.30

5th pressure hPa : -

Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

: 1050 Speed rpm

Del.quantity cm3/: 228.0...231.0 1000 s: (225.0...234.0)

cm3 : 8.00Spread

1000 s: (12.0)

Aneroid pressure h: 1400

Speed rpm

Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 146.0...148.0

1000 s: (143.0...151.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

: 2.75...2.85 : (2.70...2.90) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4 Note remarks : MAC 11,1 a4 : 29.03.89 : 7.2.89 Test sheet Edition Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 0 402 746 817 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 BASIC SETTING Governor Governor design. : RQV325...900PA848-4K 1st speed rpm: 900 Governer no. : 0 421 815 173 Rack travel in mm : 15.20...15.30 Customer-spec. information Del.quantity cm3/: 25.0...25.2 Customer : MACK : EC6-350 4VH 100 s: (24.7...25.5) Engine 1st version kW : 261.0 Spread cm3 : 0.5: 1800 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Test oil Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 3.9...4.5 inlet temp. °C : 38...42 100 s: (3.7...4.7) cm3 : 0.8 Overflow valve Spread : 2 417 413 011 100 s: (1.2) (B) Setting of injection pump Inlet press., bar: 1.50 with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.20...1.40 Opening travel mm : 207...210 pressure, bar 2nd speed rpm : 450 : 3.10...3.30 travel mm rpm : 850 Orifice plate 3rd speed diameter mm : 0,6 : 5.90...6.10 travel mm rpm : 1000 : 7.50...7.70 4th speed travel mm Test Lines : 1 680 750 008 GUIDE SLEEVE POSITION

Control-lever position

Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. Values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 17...19 Speed rpm: 1130 Rack travel in mm: 7.00...13.00 FULL LOAD DELIV. AT FULL LOAD STOP

Degree: -1

1st version Speed

rpm : 900 Aneroid pressure h: 1200

Del.quantity : 250.5...252.5 1000 : (247.5...255.5)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 14.20 Speed rpm: 950...960
2nd rack travel in: 4.00
Speed rpm: 1090...1120
4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed rpm : 275 Minimum rack trave: 6.40 Speed rpm: 325 Rack travel in mm: 4.90...5.10

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 15.20...15.30

2nd speed rpm : 625

Rack travel in m: 15.50...15.60

3rd speed rpm : 700

Rack travel in m: 15.40...15.60

4th speed rpm : 500 Rack travel in m: <15.00

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 625 rpn hPa : 1200 Pressure

: 15.50...15.60 Rack travel mm

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 280

Rack travel in m: 10.40...10.50 3rd pressure hPa : 650

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 625 Speed rpm

Del.quantity cm3/: 278.0...284.0 1000 s: (275.0...287.0)

cm3 : 8.00

Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 130.5...134.5 1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.20

rpm : 950...960 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 120.0...160.0 1000 s: (110.0...170.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00 1000 s: (12.00) Spread

Remarks:

Delivery-valve spring pre-tension

3.0...3.2 mm.

Note remarks

Test sheet : MAC 11,1 b6 : 29.03.89 Edition : 7.2.89 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 825

Injection bump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

Governor design. : RQV325...900PA878-5K

Governer no. : 0 421 815 182

Customer-spec. information Customer : MACK

Engine : EC6-350 4VH

1st version kW : 261.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm:900

Rack travel in mm : 15.20...15.30

Del.quantity cm3/: 25.0...25.2

100 s: (24.7...25.5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.02nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 3.9...4.5

100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 : 1.20...1.40 1st speed travel mm rpm : 450 2nd speed

: 3.10...3.30 travel mm rpm : 850 3rd speed

travel mm : 5.90...6.10 rpm : 1000 4th speed

: 7.50...7.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1200

Del.quantity : 250.5...255.5)

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 14.20 rpm : 950...960 Speed 2nd rack travel in: 4.00 Speed rpm : 1090...1120 4th rack travel in: 1200 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 7...15 Testing: Speed rpm : 275 Minimum rack trave: 6.40 Speed rpm : 325 Rack travel in mm : 4.90...5.10 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 15.20...15.30 2nd speed rpm : 625 Rack travel in m: 15.50...15.60 3rd speed rpm : 700 Rack travel in m: 15.40...15.60 4th speed rpm : 500 Rack travel in m: <15.00 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 625 hPa : 1200 Pressure Rack travel mm : 15.50...15.60 Measurement 1/min: 625 Speed 1st pressure hPa : -

Rack travel in m: 8.30...8.70

Rack travel in m: 10.40...10.50

Rack travel in m: 13.30...13.70

2nd pressure hPa : 280

3rd pressure hPa : 650

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 625 Del.quantity cm3/ : 278.0...284.0 1000 s: (275.0...287.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 130.5...134.5 1000 s: (128.5...136.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.20 rpm : 950...960 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 120.0...160.0 1000 s: (110.0...170.0) Rack travel in mm : 8.30...8.70 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: Delivery-valve spring pre-tension 3.0...3.2 mm.

Note remarks

: MB 11,7 f 1 Test sheet : 29.03.89 : 7.3.88 Edition Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 830

Injection pump

Pump designation : PES6P120A720LS7107

: 0 412 726 801 EP type number

Governor

Governor design. : RQV350..1100PA886

: 0 421 813 691 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M447ha Engine

1st version kW : 206.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1030

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm : 5.2...5.5 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 : 2.20...2.40 1st speed

travel mm rpm : 580 2nd speed

: 3.80...4.20 travel mm

rpm : 1150 3rd speed

travel mm : 8.00...8.50

4th speed : 1230 rpm 9.20...9.80 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1160

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed

Aneroid pressure h: 750 : 197.0...199.0 Del.quantity 1000 : (194.0...202.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 60...68 Testing: 1st rack travel in: 12.40 rpm : 1120...1130 Speed 2nd rack travel in: 4.00 rpm : 1215...1245 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 11...19 Testing: Speed rpm Minimum rack trave: 7.50 : 350 rom Rack travel in mm : 5.20...5.50 CONSTANT REGULATION rpm : 350...550 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 10.70...11.00 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 230 Rack travel in m: 11.00...11.20 2nd pressure hPa : 370 Rack travel in m: 12.40...12.60 START CUT-OUT Speed 1/min: 270 (290) FUEL DELIVERY CHARACTERISTICS

1st version

E03

Aneroid pressure h: 750

: 600 Speed rpm Del.quantity cm3/: 196.0...200.0 1000 s: (193.0...203.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 750 : 1080 Speed rpm Del.quantity cm3/: 150.0...152.0 * 1000 s: (147.0...155.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 rpm Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1120...1130 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (146.0...174.0) Remarks: * = Set at reduced-delivery stop.

Note remarks

: MB 12,0 a 2 : 29.03.89 : 3.3.89 Test sheet Edition Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 841

Injection pump

Pump designation : PES6P120A720LS7114-2

EP type number

: 0 412 726 815

Governor

Governor design. : RQ300/1050PA774-3

Governer no.

: 0 421 801 451

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M447 LA Engine

1st version kW : 265.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.8...6.2 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900

Del.quantity : 229.0...234.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm : 20.0

Testing: 1st rack travel in: 13.20 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.0 Speed : 300 rpm Rack travel in mm : 5.80...6.20 Rack travel in mm: 2.00 Speed : 360...400 rpm TORQUE CONTROL Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.20...14.40 3rd speed rpm : 700 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 700 : 14.70...14.90 Rack travel mm Measurement 1/min : 600Speed 1st pressure hPa : 300 Rack travel in m: 12.50...12.70 2nd pressure hPa : 500 Rack travel in m: 14.10...14.30 3rd pressure hPa : 1100 Rack travel in m: 14.90...15.10 * 4th pressure hPa : 1200 Rack travel in m: 15.20...15.40 5th pressure hPa : -Rack travel in m: 10.40...10.70 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...341.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 1500 : 700 Speed rpm Del.quantity cm3/: 246.0...249.0 1000 s: (243.0...252.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.20 Speed rpm : 1095...1110 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

1st version

Aneroid pressure h: 1500

rpm : 1050

Note remarks

Test sheet : MAC 11,1a15 Edition : 07.04.89

Replaces

Test oil : ISO-4113

: 0 402 746 846 Combination no.

Injection pump

Pump designation : PES6P120A720RS7135

: 0 412 726 807 EP type number

Governor

: RQV325...850PA848-23 Governor design.

: 0 421 815 204 Governer no.

Customer—spec. information

Customer : MACK TRUCKS

: E6 300 4VH Engine

: 224.0 1st version kW : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2,75,...2,85 : (2.70...2.90)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.90...13.00

Del.guantity cm3/: 20.0...20.2

100 s: (19.7...20.5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.5...4.7 Del.quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 325 : 1.20...1.40 travel mm rpm : 450 2nd speed

: 2.80...3.10 travel mm rpm : 850 3rd speed

: 6.20...6.40 travel mm

rpm : 1000 4th speed : 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 900

: 200.0...202.0 Del.quantity 1000 : (197.0...205.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testina: 1st rack travel in: 11.90 rpm : 900...910 Speed 2nd rack travel in: 4.00 rpm : 1025...1055 4th rack travel in: 1100 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: rpm : 275 Speed Minimum rack trave: 6.00 rpm : 325 Rack travel in mm : 4.50...4.70 Rack travel in mm: 2.00 CONSTANT REGULATION Speed rom : 325...520 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 12.90...13.00 : 700 2nd speed rpm Rack travel in m: 13.60...13.70 3rd speed rpm : 600 Rack travel in m: 13.80...13.90 4th speed rpm : 500 Rack travel in m: 0.00...13.60 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed hPa : 900 Rack travel mm : 13.80...13.90 Measurement 1/min: 600 Speed

Rack travel in m: 11.20...11.30 3rd pressure hPa : 475 Rack travel in m: 12.90...13.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed : 600 rom Del.quantity cm3/: 237.0...243.0 1000 s: (234.0...246.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 400 Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 900...910 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 195.0...235.0 1000 s: (185.0...245.0) Rack travel in mm : 10.30...10.50 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0) cm3 : 8.00 1000 s: (12.00) Spread Remarks: Delivery-valve spring pre-tension 3.0...3.2 mm.

1st pressure hPa : -

Rack travel in m: 10.30...10.50 2nd pressure hPa : 250

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 11,1a16 : 07.04.89 Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 746 847 Injection pump Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807 Governor Governor design. : RQV325...850PA878-8K Governer no. : 0 421 815 205 Customer-spec. information Customer : MACK TRUCKS : E6 300 4VH Engine 1st version kW : 224.0 : 1700 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Openina . pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter

x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm Rack travel in mm : 10.50 : 1-5- 3- 6- 2- 4 Firing order Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 850 1st speed Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 20.0...20.2 100 s: (19.7...20.5) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm: 4.5...4.7 Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.20...1.40 travel mm 2nd speed rpm : 450 travel mm : 2.80...3.10 3rd speed rpm : 850 : 6.20...6.40 travel mm 4th speed rpm : 1000 : 7.70...7.90 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1100 Speed Rack travel in mm : 7.00...13.00 FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 850 Speed Aneroid pressure h: 900

Del.quantity : 200.0...205.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.90 Speed rpm : 900...910 2nd rack travel in: 4.00 rpm : 1025...1055 Speed

4th rack travel in: 1100

rom : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 6.00 rpm : 325 Speed

Rack travel in mm : 4.50...4.70

Rack travel in mm : 2.00

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.90...13.00

2nd speed rpm : 700

Rack travel in m: 13.60...13.70

3rd speed rpm : 600

Rack travel in m: 13.80...13.90

4th speed rpm : 500

Rack travel in m: 0.00...13.60

Aneroid/Altitude Compensator Test

1st version Setting

: 600 Speed rom hPa : 900 Pressure

: 13.80...13.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : Rack travel in m: 10.30...10.50
2nd pressure hPa : 250
Rack travel in m: 11.20...11.30

3rd pressure hPa : 475

E09

Rack travel in m: 12.90...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 600 Speed rpm

Del.quantity cm3/: 237.0...243.0 1000 s: (234.0...246.0)

cm3 : 8.00 1000 s: (12.0) Spread

Aneroid pressure h: -

rpm : 400 Speed Del.quantity cm3/: 154.0...158.0

1000 s: (152.0...160.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 195.0...235.0

1000 s: (185.0...245.0)

Rack travel in mm : 10.30...10.50

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm3/: 32.0...38.0
1000 s: (30.0...40.0)

Spread

cm3 : 8.00

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.0...3.2 mm.

Note remarks

: MAC 11,1a17 Test sheet : 07.04.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 849

Injection pump

Pump designation : PES6P120A720RS7135

EP type number : 0 412 726 807

Governor

: RQV325...850PA878-10 Governor design.

: 0 421 815 209 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

: E6 275 4VH Engine

: 202.0 1st version kW Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90)
Rack travel in mm : 10.50

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm: 4.5...4.7

Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 325 : 1.20...1.40 travel mm

2nd speed rpm : 450

: 2.80...3.10 travel mm : 850 3rd speed

rom

: 6.20...6.40 travel mm

1000 4th speed rpm

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Aneroid pressure h: 900

Del.quantity : 183.0...188.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.90 rpm : 900...910 Speed 2nd rack travel in: 4.00 Speed rpm: 1025...1055 4th rack travel in: 1100 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 7...15 Testina: Speed : 275 rom Minimum rack trave: 6.40 Speed : 325 rpm Rack travel in mm : 4.50...4.70 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 850 1st speed Rack travel in m: 11.90...12.90 2nd speed rpm : 700 Rack travel in m: 12.80...12.90 3rd speed rpm : 600 Rack travel in m: 13.00...13.10 4th speed rpm : 500 Rack travel in m: 0.00...12.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 900 Pressure Rack travel mm : 13.00...13.10 Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 10.30...10.50 2nd pressure hPa : 225

Rack travel in m: 11.00...11.10

3rd pressure hPa : 385 Rack travel in m: 12.20...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 : 600 Speed rom Del.quantity cm3/: 219.5...225.5 1000 s: (216.5...228.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 900...910 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 195.0...235.0 1000 s: (185.0...245.0) Rack travel in mm : 10.30...10.50 LOW IDLE rpm : 325 Speed Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0) Spread cm3 : 8.001000 s: (12.00) Remarks: Delivery-valve spring pre-tension 3.0...3.2 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : MAC 11,1a13 : 02.05.89 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 851 Injection pump Pump designation : PES6P120A720RS7135 : 0 412 726 807 EP type number Governor : RQV325...850PA848-25 Governor design. : 0 421 815 208 Governer no. Customer-spec. information Customer : MACK TRUCKS : E6 275 4VH Engine : 202.0 1st version kW : 1800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

: 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 850 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 18.3...18.5 100 s: (18.0...18.8) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm : 4.5...4.7 Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 : 1.20...1.40 1st speed travel mm : 450 2nd speed rpm : 2.80...3.10 travel mm : 850 3rd speed rpm : 6.20...6.40 travel mm 1000 4th speed mon : 7.70...7.90 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1100 Rack travel in mm : 7.00...13.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 850 Aneroid pressure h: 900

: 2.75...2.85

: (2.70...2.90)

: 1-5-3-6-2-4

Prestroke mm

Firing order

Rack travel in mm : 10.50

Outside diameter

x Wall thickness

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

x Length mm

Del.quantity : 183.0...185.0 1000 : (180.0...188.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.90 rpm : 900...910 Speed 2nd rack travel in: 4.00 rpm : 1025...1055 4th rack travel in: 1100 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 7...15 Testing: Speed : 275 rom Minimum rack trave: 6.40

Speed rpm : 325 Rack travel in mm : 4.50...4.70

CONSTANT REGULATION rpm : 325...520 Speed

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 11.90...12.00 2nd speed rpm : 700 Rack travel in m: 12.80...12.90 3rd speed rpm : 600 Rack travel in m: 13.00...13.10 4th speed rpm : 500

Rack travel in m: 0.00...12.80

Aneroid/Altitude Compensator Test

1st version Setting : 600 rpm : 600 hPa : 900 Speed Pressure

Rack travel mm : 13.00...13.10

Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 10.30...10.50 2nd pressure hPa : 225

Rack travel in m: 11.00...11.10

3rd pressure hPa : 385 Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900

Speed rpm : 600
Del.quantity cm3/: 219.5...225.5
1000 s: (216.5...228.5)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 154.0...158.0 1000 s: (152.0...160.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90 Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 195.0...235.0 1000 s: (185.0...245.0)

Rack travel in mm : 10.30...10.50

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.50...4.70 Del.quantity cm3/ : 32.0...38.0 1000 s: (30.0...40.0)

cm3 : 8.00Spread 1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.0...3.2 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 11,1a14 Edition : 02.05.89 Replaces Test oil : ISO-4113 : 0 402 746 852 Combination no. Injection pump Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814 Governor Governor design. : RQV325...900PA909K Governer no. : 0 421 815 210 Customer-spec, information Customer : MACK TRUCKS Engine : E7-400 : 298.0 1st version kW : 1700 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

```
Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4
Firing order
Phasing
                    : 0-60-120-180-240-300
Tolerance + - 0
                    : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
               rpm: 900
1st speed
Rack travel in mm : 15.80...15.90
Del.quantity cm3/: 27.5...27.7
              100 s: (27.2...28.0)
              cm3 : 0.5
Spread
              100 s: (0.9)
2nd speed rpm : 325.0
Rack travel in mm : 4.7...4.9
Del.quantity cm3/: 4.0...4.6
              100 s: (3.8...4.8)
Spread
              cm3 : 0.8
              100 s: (1.2)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
              rpm : 325 : 1.20...1.40
1st speed
  travel mm
                  : 450
2nd speed
              rpm
                    : 2.80...3.20
  travel mm
3rd speed
              rpm : 650
  travel mm
                      5.60...5.80
                     900
4th speed
              rom :
                   : 8.30...8.50
  travel mm
                  : 1100
5th speed
              rpm
                    : 10.30...10.80
  travel mm
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
              rpm : 900
Speed
Aneroid pressure h: 1200
                   : 275.0...277.0
Del.quantity
             1000 : (272.0...280.0)
                   : 5.00
             cm3
Spread
             1000
                  : (9.00)
```

Outside diameter

x Wall thickness

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

x Length mm

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 14.80 Speed rpm: 940...950 2nd rack travel in: 4.00

Speed rpm : 1120...1150 4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 7...15

Testing:

Speed rpm : 275 Minimum rack trave: 6.30 Speed rpm

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 15.80...15.90

: 625 2nd speed rpm

Rack travel in m: 15.20...15.30

3rd speed rpm : 700

Rack travel in m: 15.50...15.60

4th speed rpm : 500

Rack travel in m: 0.00...13.50

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 900 rpm hPa : 1200 Pressure

: 15.80...15.90 Rack travel mm

Measurement

1/min: 900 Speed

1st pressure hPa : -

Rack travel in m: 8.10...8.50

2nd pressure hPa : 325
Rack travel in m: 10.20...10.30
3rd pressure hPa : 790
Rack travel in m: 13.80...14.20

START CUT-OUT

Speed

1/min: 275 (285)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed : 625 rpm

Del.quantity cm3/: 302.5...308.5 1000 s: (299.5...311.5)

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: -

: 400 Speed rpm

Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.80

Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 180.0...220.0

1000 s: (170.0...230.0)

Rack travel in mm : 10.40...10.60

LOW IDLE

Speed rpm

Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 40.0...46.0

1000 s: (38.0...48.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.0...3.2 mm.

Note remarks

Test sheet : MB 12,0 d 1 Edition : 08.05.89

Replaces

Test oil : ISO-4113

: 0 404 746 855 Combination no.

Injection pump

Pump designation : PES6P120A720LS7161

EP type number : 0 412 726 817

Governor

Governor design. : RQ300/1050PA897 Governer no. : 0 421 801 452

Customer-spec. information

: DAIMLER-BENZ Customer

: 0M447 A Engine

: 213.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.10...14.30

Del.guantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.6

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 650 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 680

Del.quantity : 201.0...206.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm : 20.0

Testina: 1st rack travel in: 12.60 Speed rpm : 1095...1110 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1250 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.9 Testina: rpm : 200 Speed Minimum rack trave: 7.50 rpm : 300 Rack travel in mm : 5.80...6.00 Rack travel in mm: 2.00 Speed rom : 380...420 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 hPa : 680 : 600 Speed Pressure Rack travel mm : 14.10...14.30 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.20...13.40 3rd pressure hPa : 800 Rack travel in m: 14.20...14.30 4th pressure hPa : -Rack travel in m: 11.50...11.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/: 193.0...195.0 1000 s: (190.0...198.0) Spread cm3 : 8.00 1000 s: (12.0)

Del.quantity cm3/: 218.0...222.0 1000 s: (215.0...225.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (146.0...174.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

E17

Aneroid pressure h: 1200 Speed rpm : 750

: FIA 9,5 a : 08.05.89 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 857

Injection pump

Note remarks

Pump designation : PES6P120A720RS7177

EP type number : 0 412 726 823

Governor Governor design. : RQ285/1100PA915 Governer no.

: 0 421 801 478

Customer-spec. information Customer : IVECO-FLAT

Engine : 8460.41.601

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15) Rack travel in mm : 9.00...12.00

E18

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.30...11.40

Del.guantity cm3/: 18.8...19.0

100 s: (18.5...19.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 285.0 Rack travel in mm: 4.2...4.4

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Anerous F. Del.quantity 1000 : 188.0...190.0 : (185.0...193.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.30

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

: 1230...1260 Speed rpm

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 285 Rack travel in mm : 4.3

Testing:

rpm : 100 Speed Minimum rack trave: 5.80 Speed rpm : 285

Rack travel in mm : 4.20...4.40

CONSTANT REGULATION

rpm : 330...370 Speed

TORQUE CONTROL

Dimension a mm :-

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.30...11.40

2nd speed rpm : 600

Rack travel in m: 11.30...11.50

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

Rack travel mm : 11.30...11.40

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...8.80

2nd pressure hPa : 320

Rack travel in m: 10.30...10.40

3rd pressure hPa : 270

Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 123.0...125.0

1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Remarks:

:

APPLICATION

Omnibus.

Note remarks

Test sheet : MB 10,0 a : 07.02.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 775 801

Injection pump

Pump designation : PES5P120A720LS7172

: 0 412 725 805 EP type number

Governor

Governor design. : RSV350...1050P0A529

-2

: 0 421 833 312 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M449 LA

1st version kW : 221.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 1-3-5-4-Firing order

Phasina : 0-72-144-216-288

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

rpm : 10301st speed

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 22.9...23.2

100 s: (22.6...23.5)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 350.02nd speed

Rack travel in mm: 4.5...4.8 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 100 s: (1.2) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Aneroid pressure h: 1500

: 229.0...232.0 Del.quantity 1000 : (226.0...235.0) cm3 : 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

E20

Control Lever position degrees: 50...58 Testing: 1st rack travel in: 11.90 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 rom : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.65 Speed rpm : 350 Rack travel in mm : 4.50...4.80 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack trayel in m: 12.90...13.00 2nd speed rpm : 750 Rack travel in m: 13.90...14.00 3rd speed rpm : 875 Rack travel in m: 13.50...13.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 750 Rack travel mm : 13.10...13.30 Measurement 1/min : 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.50...10.70 2nd pressure hPa : 500 Rack travel in m: 12.20...12.40
3rd pressure hPa : 1050
Rack travel in m: 13.30...13.50
4th pressure hPa : 1500
Rack travel in m: 13.90...14.10 5th pressure hPa : -Rack travel in m: 9.50...9.90 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 750 rpm : 700 Speed Del.quantity cm3/: 235.0...238.0 1000 s: (232.0...241.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 : 750 Speed rpm Del.quantity cm3/: 251.0...254.0 1000 s: (248.0...257.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0)

Remarks:

E21

1st version

Note remarks

Test sheet Edition : MB 11,7 g : 29.03.89 : 12.9.86 Replaces Test oil : ISO-4113

Combination no. : 0 402 776 801

Injection pump

Pump designation : PES6P120A720LS7107-1

EP type number : 0 412 726 805

Governor

Governor design. : RSV350..0750P0A520

Governer no. : 0 421 833 223

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M427 A Engine

1st version kW : 184.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.40...13.50

Del.guantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 201.0...203.0 Del.quantity 1000 : (198.0...206.0)

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED

1st version Control lever

position degrees: 23...31

Testing:

1st rack travel in: 12.40

rpm : 750...755 Speed 2nd rack travel in: 4.00 Speed rpm: 775...788 4th rack travel in: 1000 Speed rom : 0.30...1.70LOW IDLE 1 Control lever position degrees: 12...20 Setting point wout bumper spring Speed rpm : 350
Rack travel in mm : 5.5
Speed rpm : 350
Rack travel in mm : 5.40...5.60 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 188.0...194.0 1000 s: (185.0...197.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version rpm : 1130...1140 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 170.0...190.0 1000 s: (166.0...194.0) Remarks: Observe VDT-I-420/120

Note remarks

Test sheet : MB 11,7 c 3 : 29.03.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 806

Injection pump

Pump designation : PES6P120A720LS7120

EP type number

: 0 412 726 803

Governor

Governor design. : RSV350..1050P0A529-3

Governer no.

: 0 421 833 317

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M447 A

: 213.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 650 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.2...20.4

100 s: (19.9...20.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650 Aneroid pressure h: 650

: 202.0...204.0 Del.quantity

1000 : (199.0...207.0) Spread Cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 48...56 Testing: 1st rack travel in: 12.20 rpm : 1080...1090 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 5.7 rpm : 350 Speed Rack travel in mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.20...13.30 2nd speed rpm : 950 Rack travel in m: 13.70...13.90

3rd speed rpm : 875

Rack travel in m: 14.20...14.40

4th speed rpm : 750 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 600 Pressure Rack travel mm : 14.70...14.90 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 13.00...13.20 2nd pressure hPa : 400 Rack travel in m: 13.90...14.10 3rd pressure hPa : 850 Rack travel in m: 15.00...15.20 4th pressure hPa : -Rack travel in m: 11.40...11.70 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1200 Speed rpm : 1030 Del.quantity cm3/: 194.0...197.0 1000 s: (191.0...200.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 750
Del.quantity cm3/ : 219.0...224.0
1000 s: (216.0...227.0)
Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 144.0...146.0 1000 s: (141.0...149.0) Spread cm3 : 8.001000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than

full load rack tr: 12.20 Speed rpm : 1080...1090

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 190.0...210.0

1000 s: (186.0...214.0)

Remarks:

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : CUM 8,3 D13 : 07.02.89 Replaces Test oil : ISO-4113 Combination no. : 0 403 436 102CA Injection pump Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 Governor : RQV350...1100MW78-2 Governor design. Governer no. : 0 420 083 160 : 3908567 Cust. part no. Customer-spec. information Customer : CUMMINS/US : 6 CTA-8.3 Engine : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 D47 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening. : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness

: 6.00x2.00x600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 12.70...12.80 Del.guantity cm3/: 15.0...15.2 100 s: (14.8...15.4) Spread cm3 : 0.3100 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1240 1st speed : 8.80...9.20 travel mm rpm : 1140 2nd speed : 7.80...8.00 travel mm rpm : 700 3rd speed : 3.80...4.40 travel mm rpm : 350 4th speed travel mm : 1.20...1.60 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 900 : 150.0...152.0 Del.quantity 1000 : (148.0...154.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version

Prestroke mm

Firing order

: 3.05...3.15

: 1-5-3-6-2-4

: (3.00...3.20) Rack travel in mm : 9.00...12.00

x Length mm

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Control Lever

position degrees: 44...52

Testing:

1st rack travel in: 11.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1230...1260 Speed

4th rack travel in: 1330

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.4

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

Speed rpm : 350 Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

rpm : 360...550 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom

Pressure hPa : 900

: 12.70...12.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.60...9.70

2nd pressure hPa : 230

Rack travel in m: 10.40...10.50

3rd pressure hPa : 490

Rack travel in m: 12.00...12.40

START CUT-OUT

1/min: 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 76.0...78.0 1000 s: (74.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (202.0...228.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7.30...7.50 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.501000 s: (5.50)

Remarks:

Spread

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 27...29 Prestroke mm : 3.05...3.15 : (3.00...3.20) Rack travel in mm : 9.00...12.00 Note remarks : CUM 8,3 D 6 : 07.02.89 Test sheet Edition : 1-5-3-6-2-4 Firing order Replaces : ISO-4113 Test oil Combination no. : 0 403 436 103EA : 0-60-120-180-240-300 Phasing Phasing Injection pump Tolerance + - 0 : 0.50 (0.75) Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 Time to cyl. no. : 1 Governor Governor design. : RQV350...1100MW82 BASIC SETTING : 0 420 083 130 Governer no. 1st speed rpm: 1100 Cust. part no. : 3915168 Rack travel in mm : 12.70...12.80 Customer-spec. information Del.quantity cm3/: 15.0...15.2 Customer : CUMMINS/US Engine : 6 CTA-830 100 s: (14.8...15.4) : 186.0 cm3 : 0.31st version kW Spread Rated speed : 2200 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. °C : 38...42 100 s: (1.4...2.2) Overflow valve Spread cm3 : 0.3: 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 1150 **Opening** travel mm : 8.20...8.40 : 207...210 2nd speed : 1250 pressure, bar rpm travel mm : 9.30...9.70 : 350 Orifice plate 3rd speed rpm diameter mm : 0,6 travel mm 4th speed 700 rpm travel mm Test lines : 1 680 750 014 Outside diameter x Wall thickness

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

1.70...2.10 : 4.10...4.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed

Aneroid pressure h: 900 : 150.0...152.0 Del.quantity

1000 : (148.0...154.0) : 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

x Length mm

per values

BEGINNING OF DELIVERY

1st version Control Lever

position degrees: 43...51

Testing:

1st rack travel in: 11.70

rom : 1150...1160 Speed

2nd rack travel in: 4.00

rpm : 1245...1275 Speed

4th rack travel in: 1330

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.3

Testina:

rpm : 100 Speed Minimum rack trave: 9.30

: 350 Speed rom

Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

rpm : 360...550 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.70...12.80

2nd speed rpm : 700

Rack travel in m: 13.60...13.70 3rd speed rpm : 900

Rack travel in m: 12.90...13.20

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : Pressure

9.60...9.70 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 255 Rack travel in m: 10.60...10.70

2nd pressure hPa : 580
Rack travel in m: 12.20...12.60
3rd pressure hPa : 900

Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min: 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 700 Speed rom

Del.quantity cm3/: 159.0...161.0

1000 s: (157.0...163.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 76.0...78.0 1000 s: (74.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 205.0...225.0

1000 s: (202.0...228.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.20...7.40

Del.quantity cm3/: 16.0...20.0

1000 s: (14.0...22.0)

: 3.50 Spread cm3

1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after

start of delivery of cylinder 1.

Note remarks

Test sheet : CUM 8,3 F : 10.02.89 Edition Replaces : 29.04.88 : ISO-4113 Test oil

: 0 403 436 105GA Combination no.

Injection pump

Pump designation : PES6MW100/120RS1169

: 0 413 406 153 EP type number

Governor

Governor design. : RQV350...1100MW78-1

: 0 420 083 156 Governer no.

: 3914828 Cust. part no.

Customer-spec. information : CUMMINS/US Customer

: 6 CTA-8.3 Engine

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15) Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 13.5...13.7

100 s: (13.3...13.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm:350.02nd speed Rack travel in mm : 6.0...6.2 Del.quantity cm3/ : 1.2...1.6 100 s: (1.0...1.8)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed : 8.60...9.20 travel mm

rpm : 1250 2nd speed : 7.60...7.80 travel mm

rpm : 800 3rd speed

: 4,90...5.50 travel mm

rpm : 350 4th speed travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

: 135.0...137.0 Del.quantity 1000 : (133.0...139.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 44...52 Testina: 1st rack travel in: 11.40 Speed rpm : 1250...1260 2nd rack travel in: 4.00 rpm : 1350...1380 Speed 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 7.70 rpm : 350 Speed Rack travel in mm : 6.00...6.20 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : -Pressure Rack travel mm : 11.40...11.50 Measurement 1/min: 500 Speed 1st pressure hPa : 320 Rack travel in m: 11.70...11.80 2nd pressure hPa : 400 Rack travel in m: 12.00...12.30 3rd pressure hPa : 900 Rack travel in m: 12.40...12.50 START CUT-OUT 1/min: 220 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 800 Speed Del.quantity cm3/: 128.0...132.0 1000 s: (126.0...134.0) cm3 : 5.00 Spread 1000 s: (7.0)

Del.quantity cm3/: 108.0...110.0 1000 s: (106.0...112.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40 Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 222.0...232.0 1000 s: (219.0...235.0)

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.00...6.20

Del.quantity cm3/: 12.0...16.0 1000 s: (10.0...18.0) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

F03

Speed

Aneroid pressure h: -

rpm : 500

Note remarks

Test sheet Edition : CUM 8,3 D10 : 28.04.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 436 110

Injection pump

Pump designation : PES6MW100/120RS1143

: 0 413 406 137 EP type number

Governor

: RQV350...1100Mw82-5 Governor design.

: 0 420 083 177 Governer no.

: 3913639 Cust. part no.

Customer-spec. information : CUMMINS/US Customer

: 6 CTA Engine

1st version kW : 179.0 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

P04

Test pressure, bar: 30...32

: 3.05...3.15 Prestroke mm

: (3.00...3.20)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 13.5...13.7

100 s: (13.3...13.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 7.0...7.2

Del.quantity cm3/: 1.6...2.0 100 s: (1.4...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1240 1st speed

travel mm : 8.80...9.20

rpm : 1140 2nd speed travel mm

: 7.80...8.00 rpm : 700 3rd speed

: 3.80...4.40 travel mm

: 350 4th speed rpm

: 1.20...1.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Aneroid pressure h: 900

: 135.0...137.0 Del.quantity 1000 : (133.0...139.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 43...51 Testing: 1st rack travel in: 10.60 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm: 1215...1245 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 7.1 Testina: Speed rpm : 100 Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 7.00...7.20 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.60...11.70
2nd speed rpm : 700
Rack travel in m: 12.90...13.00
3rd speed rpm : 900 Rack travel in m: 12.40...12.60 Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rpm hPa : -Pressure : 10.00...10.10 Rack travel mm Measurement Speed 1/min : 500 1st pressure hPa : 300 Rack travel in m: 11.10...11.20 2nd pressure hPa : 520 Rack travel in m: 12.30...12.60 3rd pressure hPa : 900 Rack travel in m: 12.90...13.00 START CUT-OUT 1/min: 270 (280) Speed FUEL DELIVERY CHARACTERISTICS

F05

1st version Aneroid pressure h: 900 : 700 Speed rpm Del.quantity cm3/: 155.0...158.0 1000 s: (152.5...160.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 98.0...100.0 1000 s: (96.0...102.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 205.0...225.0 1000 s: (202.0...228.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 7.00...7.20 Del.quantity cm3/: 16.0...20.0 1000 s: (14.0...22.0) cm3 : 3.50Spread

Remarks:

Start-of-delivery mark 9° cam angle after start of delivery cyl. 1.

1000 s: (5.50)

Note remarks

Test sheet : CUM 8,3 D12 Edition : 07.04.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 436 111

Injection pump

Pump designation: PES6MW100/120RS1143

: 0 413 406 137 EP type number

Governor

Governor design.: RQV350...1200MW82-6

: 0 420 083 184 Governer no.

: 3916000 Cust. part no.

Customer-spec. information Customer : CUMMINS/US

: 6 CTA-830 Engine

: 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.15...3.25 : (3.10...3.30) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rbm: 1200

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 13.8...14.0

100 s: (13.6...14.2)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.1...7.2 Del.quantity cm3/ : 1.2...1.6

100 s: (1.0...1.8)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1250 1st speed travel mm

: 7.60...7.80 rpm : 1350 2nd speed

: 8.60...9.00 travel mm

rpm : 350 3rd speed

: 1.20...1.60 travel mm

rpm : 800 4th speed

: 4.90...5.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Aneroid pressure h: 700

Del.quantity : 138.0...140.0

1000 : (136.0...142.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 42...50 Testina: 1st rack travel in: 11.10 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1370...1400 Speed 4th rack travel in: 1455 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 11...19 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 7.1 Testina: rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 7.10...7.20 CONSTANT REGULATION rpm : 360...500 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 12.10...12.20 od speed rpm : 750 2nd speed Rack travel in m: 12.60...12.70 3rd speed rpm: 1000 Rack travel in m: 12.10...12.20 4th speed rpm : 900 Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm Pressure hPa : -: 10.70...10.80 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 390

Rack travel in m: 11.00...11.10

Rack travel in m: 11.60...11.90 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70

2nd pressure hPa : 480

Speed 1/min : 270 (280) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 750 Speed rpm Del.quantity cm3/: 139.0...142.0 1000 s: (136.5...144.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 100.0...102.0 1000 s: (98.0...104.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (202.0...228.0) LOW IDLE Speed rpm : 350 Rack travel in mm : 7.10...7.20 Del.quantity cm3/: 12.0...16.0 1000 s: (10.0...18.0) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

START CUT-OUT

Note remarks

Test sheet : VOL 4,5 L : 07.04.89 : 12.09.86 Edition Replaces Test oil : ISO-4113

Combination no. : 0 403 444 111

Injection pump

Pump designation: PES4MW100/320RS1116

: 0 413 404 102 EP type number

Governor

Governor design. : RQV300...1100MW39-5

: 0 420 083 068 Governer no.

Customer-spec. information Customer : VOLVO

Engine : TD458

: 85.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 173...176 pressure, bar

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

Phasing

rpm: 700 1st speed

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 11.5...11.7

100 s: (11.3...11.9)

: 0-90-180-270

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.5 Del.quantity cm3/: 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1225

: 9.40...9.80 travel mm

rpm : 1150 2nd speed

: 8.30...8.50 travel mm

rpm : 600 3rd speed

: 2.70...3.30 travel mm

rpm : 300 4th speed

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rom : 1130 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 115.0...117.0 Del.quantity

1000 : (113.0...119.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

cm3 : 3.50 Testing: Spread 1st rack travel in: 12.00 1000 s: (5.50) rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Remarks: rpm : 1225...1255 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.4 Testing: : 100 Speed Libili Minimum rack trave: 8.00 Speed rpm: 300 Rack travel in mm : 6.40...6.50 CONSTANT REGULATION rpm : 320...450 Speed FUEL DELIVERY CHARACTERISTICS 1st version : 1000 Speed rpm Del.quantity cm3/: 115.5...118.5 1000 s: (113.0...121.0) Spread cm3 : 5.50 1000 s: (7.0) RACK STOP ADJUSTMENT Speed rpm : 100 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 150.0...160.0 1000 s: (147.0...163.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 6.40...6.50 Del.quantity cm3/ : 13.0...17.0

1000 s: (10.5...19.5)

F09

:

Note remarks

Test sheet : MB 6,0 D 30 Edition : 30.09.88 : 24.07.87 Replaces : ISO-4113 Test oil

Combination no. : 0 403 446 145

Injection pump

Pump designation : PES6MW100/720RS1114-

: 0 413 406 111 EP type number

Governor

Governor design. : RQV300...1300MW48

: 0 420 083 066 Governer no.

Customer-spec. information Customer

Engine : 0M366A

1st version kW : 125.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm : (3.65...3.85)

Rack travel in mm : 9.00...12.00

F10

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rom : 1300

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 7.8...7.9 Del.guantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.50...9.90 travel mm

1350 2nd speed rpm :

: 8.50...8.70 travel mm 450

3rd speed rom :

: 2.40...3.00 rpm : 300 travel mm 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1330 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

: 77.0...79.0 Del.quantity

1000 : (75.0...81.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version

Control lever position degrees: 48...56 Testing: 1st rack travel in: 10.00 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1520 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 14...22 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.8 Testing: rpm : 100 Speed Minimum rack trave: 9.40 Speed rpm : 300
Rack travel in mm : 7.80...7.90
Rack travel in mm : 2.00 rpm : 500...560 Speed CONSTANT REGULATION rpm : 330...600 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 11.00...11.10 2nd speed rpm : 700 Rack travel in m: 12.10...12.20 3rd speed rpm : 720 Rack travel in m: 12.10...12.20 4th speed rpm : 800 Rack travel in m: 11.80...12.00 5th speed rpm : 900 Rack travel in m: 11.40...11.70 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 700 Speed Del.quantity cm3/: 74.5...77.5 1000 s: (72.0...80.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY

1st version

F11

1mm rack travel less than full load rack tr: 10.00 rpm : 1340...1350 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) cm3 : 3.50Spread 1000 s: (5.50) Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 6,1 N 6 : 29.03.89 Edition : 12.85 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 166 Injection pump Pump designation : PES6MW100/720RS1133 EP type number : D 413 406 126 Governor Governor design. : RQ325/1325MW65 Governer no. : 0 420 082 018 Customer-spec. information Customer : KHD : BF 6L 913 BW Engine : 124.0 1st version kW : 2700 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina : 172...175 pressure, bar Test Lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1325 Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 10.2...10.4 100 s: (10.0...10.6) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 7.0...7.1 Del.quantity cm3/: 1.1...1.5 100 s: (0.9...1.7) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1460 1st speed : 8.60...9.20 travel mm 2nd speed rpm : 1380 travel mm : 6.50...6.70 3rd speed rpm : 425 : 4.00...4.40 travel mm rpm : 300 : 2.00...2.40 4th speed travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 700 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1325 Speed Aneroid pressure h: 800 Del quantity : 102.0...104.0 1000 : (100.0...106.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED

Firing order

: 1-5- 3- 6- 2- 4

per values

Prestroke mm

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.50...3.60

: (3.45...3.65)

1st version Control lever position degrees: 26...34 Setting point: Speed rpm : 700 Rack travel in mm : 20.0 Testina: 1st rack travel in: 10.10 rpm : 1370...1385 Speed 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 rpm : 0.10...1.00Speed LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 7.0 Testina: rpm : 100 Speed Minimum rack trave: 8.60 Speed rpm : 300 Rack travel in mm : 7.00...7.10 CONSTANT REGULATION Speed rpm : 340...450 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : 450 Pressure Rack travel mm : 10.50...10.60 Measurement 1/min : 500 Speed 1st pressure hPa : 800 Rack travel in m: 11.10...11.20 2nd pressure hPa : -Rack travel in m: 9.40...9.50 3rd pressure hPa : 350 Rack travel in m: 9.90...10.20

cm3 : 3.50 1000 s: (7.0) Spread Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 56.0...58.0
1000 s: (54.0...60.0) RACK STOP ADJUSTMENT Speed rpm : 100 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1370...1385 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...140.0 1000 s: (117.0...143.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 7.00...7.10 Del.quantity cm3/: 11.0...15.0 1000 s: (9.0...17.0) Spread cm3: 3.50 1000 s: (5.50) Remarks: Check electrically unlatched starting fuel delivery (EES) with 24 volt.

FUEL DELIVERY CHARACTERISTICS

FUEL DELIVERY CHARACIERISIICS

1st version Aneroid pressure h: 800 Speed rpm : 850 Del.quantity cm3/ : 94.0...98.0 1000 s: (92.0...100.0)

Note remarks

Test sheet : KHD 6,1 N 9 Edition : 29.03.89

Replaces :

Test oil : ISO-4113

Combination no. : 0 403 446 186

Injection pump

Pump designation : PES6MW100/720RS1133

EP type number : 0 413 406 126

Governor

Governor design. : RQV325...1325MW79

Governer no. : 0 420 083 123

Customer—spec. information Customer : KHD

Engine : BF 6L 913

1st version kW : 124.0 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)
Rack travel in mm : 9.00...12.00

F14

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^5 : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1325

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3: 0.3

100 s: (0.6)

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 6.8...6.9 Del.quantity cm3/ : 1.1...1.5

100 s: (0.9...1.7) Spread cm3 : 0.3

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1375

travel mm : 8.70...8.90

2nd speed rpm : 1430 travel mm : 9.50.

travel mm : 9.50...9.90 3rd speed rpm : 325

travel mm : 1.50...1.90

4th speed rpm: 600

travel mm : 2.70...3.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325 Aneroid pressure h: 900

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 50...58 Testina: 1st rack travel in: 9.50 Speed rpm: 1370...1380
2nd rack travel in: 4.00
Speed rpm: 1445...1475
4th rack travel in: 1550 rpm : 0.10...1.00 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 325 Speed Rack travel in mm: 6.8 Testing: rpm : 100 Speed Minimum rack trave: 8.60 rpm : 325 Rack travel in mm : 6.80...6.90 CONSTANT REGULATION rpm : 350...650 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 450 Pressure : 9.90...10.00 Rack travel mm Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 8.90...9.00 2nd pressure hPa : 350 Rack travel in m: 9.30...9.60 3rd pressure hPa : 900 Rack travel in m: 10.50...10.60 START CUT-OUT 1/min : 245 (255) Speed FUEL DELIVERY CHARACTERISTICS

cm3 : 3.50 1000 s: (7.0) Spread Aneroid pressure h: rpm : 500 Del.quantity cm3/: 57.0...59.0 1000 s: (55.0...61.0) RACK STOP ADJUSTMENT Speed rpm : 100 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1370...1380 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) LOW IDLE Speed rpm : 325 Rack travel in mm : 6.80...6.90 Del.quantity cm3/: 11.0...15.0 1000 s: (9.0...17.0) Spread

cm3 : 3.501000 s: (5.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Speed

1st version

Aneroid pressure h: 900

rpm : 850

Del.quantity cm3/: 93.0...97.0 1000 s: (91.0...99.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 T : 28.04.89 Edition : 09.12.88 Replaces : 0-60-120-180-240-300 : ISO-4113 Test oil Phasing Combination no. : 0 403 446 198 : 0.50 (0.75) Tolerance + - ° Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1160 : 0 413 406 147 EP type number 1st speed rpm: 800 Governor : RQV350...1200MW46-16 Rack travel in mm : 12.30...12.40 Governor design. : 0 420 083 147 Governer no. Del.guantity cm3/: 11.8...12.0 Customer-spec. information 100 s: (11.6...12.2) Customer : NAVISTAR : DTA-466 cm3 : 0.3Engine Spread 1st version kW : 176.4 100 s: (0.6) Rated speed : 2400 rpm : 350.0 2nd speed Rack travel in mm: 6.5...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil cm3 : 0.3inlet temp. °C : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder rpm : 1350 1st speed : 8.30...8.50 : 1 688 901 016 assembly travel mm rpm : 1460 2nd speed : 9.10...9.50 rpm : 550 : 3.10...3.70 rpm : 350 **Opening** travel mm : 207...210 pressure, bar 3rd speed travel mm Orifice plate 4th speed : 1.30...1.70 : 0,5 diameter mm travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter rpm : 800 Speed x Wall thickness Aneroid pressure h: 800 x Length mm : 6.00x2.00x600 Del.quantity : 118.0...120.0 1000 : (116.0...122.0) : 3.50 (A) Injection pump setting values Spread cm3 1000 : (6.00) Insp. values in parentheses Set equal delivery quant. RATED SPEED per values ____ BEGINNING OF DELIVERY 1st version Test pressure, bar: 30...32 Control lever position degrees: 44...49

Testing: 1st rack travel in: 11.30 rpm : 1260...1280 Speed 2nd rack travel in: 4.00 rpm : 1385...1395 Speed 4th rack travel in: 1500 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.5 Testing: rpm : 100 Speed Minimum rack trave: 9.00 rpm Rack travel in mm : 6.50...6.60 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 800 Speed rpm hPa : 180 Pressure : 10.30...10.40 Rack travel mm Measurement $1/\min : 800$ Speed 1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 480 Rack travel in m: 11.80...12.10 3rd pressure hPa : 800 Rack travel in m: 12.30...12.40 START CUT-OUT 1/min: 180 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800

Speed rpm : 1200 Del.quantity cm3/: 120.0...124.0

Aneroid pressure h: -

cm3 : 6.50

1000 s: (7.0)

1000 s: (118.0...126.0)

Speed rpm : 800
Del.quantity cm3/: 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30

STARTING FUEL DELIVERY

rpm : 1260...1280

LOW IDLE

Speed

Speed rpm : 350
Rack travel in mm : 6.50...6.60
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Spread

Note remarks

Test sheet : RVI 6,2 D : 14.04.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 218

Injection pump

Pump designation : PES6MW100/320RS1179

EP type number : 0 413 406 161

Governor

Governor design. : RQV275...1175MW80-2

: 0 420 083 180 Governer no.

Customer-spec. information : RVI Customer

Engine : MIDR 060226K

1st version kW : 160.0 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm : 16.50...19.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - □ : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1175

Del.quantity cm3/: 13.0...13.2

100 s: (12.8...13.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 275.0 Rack travel in mm : 7.5...7.7

Del.quantity cm3/: 2.8...3.2 100 s: (2.5...3.4)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1375 1st speed

: 8.60...9.00 travel mm

rpm : 1225 2nd speed

travel mm : 7.60...7.80

rpm : 500 3rd speed

travel mm : 3.20...3.80

: 275 4th speed rpm

: 1.30...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1360 Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1175 Aneroid pressure h: 1000

: 130.0...132.0 Del.quantity 1000 : (128.0...134.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

F18

Control lever position degrees: 47...55 Testing: 1st rack travel in: 12.40 rpm : 1260...1270 Speed 2nd rack travel in: 4.00 rpm : 1430...1470 Speed 4th rack travel in: 1550 Speed rpm: 1.00...0.00 LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring rpm : 275 Rack travel in mm: 7.6 Testing: Speed rpm : 100 Minimum rack trave: 7.40 rpm : 275 Rack travel in mm : 5.70...5.90 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : 1000 Pressure Rack travel mm : 13.40...13.50 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.00...10.20 2nd pressure hPa : 160 Rack travel in m: 10.80...10.90 3rd pressure hPa : 480 Rack travel in m: 12.60...12.90 START CUT-OUT 1/min : 200 (220) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 700 Speed Del.quantity cm3/: 126.5...129.5 1000 s: (124.0...132.0) Spread cm3 : 5.00

1000 s: (7.0)

rpm : 500

Aneroid pressure h: -

Speed

F19

Del.quantity cm3/: 53.0...55.0 1000 s: (51.0...57.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1260...1270 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 98.0...112.0 1000 s: (95.0...115.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 275 Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB 6,0 0 62 Edition : 29.03.89

Replaces Test oil

: ISO-4113

Combination no. : 0 403 446 222

Injection pump

Pump designation : PES6MW100/720RS1131 : 0 413 406 123 EP type number

Governor

Governor design. : RQV300...1300MW62-2

: 0 420 083 186 Governer no.

Customer-spec. information Customer : DB-NKW

: OM 366 LA Engine

1st version kW : 150.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

: 172...175 pressure, bar

Test lines : 1 680 715 015

Outside diameter x Wall thickness

x Lenath mm

: 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.75) Rack travel in mm : 9.00...12.00

F20

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

: 9.50...9.90 travel mm

2nd speed rpm : 1350

travel mm : 8.50...8.70 500 3rd speed rom

2.70...3.30 travel mm

4th speed

rpm : 300 : 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

> Degree: -1 rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rom : 1300 Aneroid pressure h: 700

: 96.0...98.0 Del.quantity

1000 : (94.0...100.0) cm3 : 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 51...59 Testing: 1st rack travel in: 10.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 14...22 Setting point w/out bumper spring npm : 300 Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 7.80 Speed rpm : 300 Rack travel in mm : 6.00...6.20 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 170 mm : 10.10...10.20 Speed rpm Pressure Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa :-Rack travel in m: 9.80...9.90 2nd pressure hPa : 225
Rack travel in m: 11.20...11.50
3rd pressure hPa : 700 Rack travel in m: 11.60...11.70 START CUT-OUT 1/min: 200 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0) cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 52.0...54.0 1000 s: (50.0...56.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1340...1350 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: :

Note remarks

Test sheet Edition : NB 6,0 D 67 : 14.04.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 224

Injection pump

Pump designation : PES6MW100/720RS1172

EP type number : 0 413 406 155

Governor

Governor design. : RQV300...1300MW67-2

: 0 420 083 189 Governer no.

Customer-spec. information Customer : DB-NKW

: DM 366 LA Engine

: 170.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 19.00...21.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

: 9.70...10.10 travel mm

rpm : 1360 2nd speed

travel mm : 8.30...8.50

3rd speed rom : 600

3.50...4.10 travel mm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

: 105.0...107.0 Del.quantity

1000 : (103.0...109.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

F22

1st version Control Lever position degrees: 60...68 Testing: 1st rack travel in: 13.40 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1500 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.9 Testina: : 100 Speed rpm Minimum rack trave: 7.60 Speed rpm : 300 Rack travel in mm : 5.80...6.00 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : : : 500 Pressure Rack travel mm : 11.70...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : 450 Rack travel in m: 12.40...12.50
2nd pressure hPa : 550
Rack travel in m: 13.30...13.50
3rd pressure hPa : 1000 Rack travel in m: 14.40...14.50 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 92.0...95.0 1000 s: (89.5...97.5) Spread cm3 : 5.00 1000 s: (7.0)

Speed rpm : 500 Del.quantity cm3/ : 42.0...44.0 1000 s: (40.0...46.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.40 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

F23

Aneroid pressure h: -

Note remarks

Test sheet : MB 6,0 D 69 : 21.04.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 225

Injection pump

Pump designation : PES6MW100/720RS1144-

: 0 413 406 159 EP type number

Governor

Governor design. : RQV300...1400MW48-11

: 0 420 083 190 Governer no.

Customer-spec. information Customer : DB-NKW

Engine : 0M366A

1st version kW : 125.0 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rom: 1400 1st speed

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...8.0 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1550 1st speed

: 9.20...9.60 travel mm

rpm : 1450 2nd speed

: 8.30...8.50 travel mm

rpm : 550 3rd speed

: 2.80...3.40 travel mm

: 300 4th speed rom

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1450 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 75.0...77.0 Del.quantity

1000 : (73.0...79.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version Control lever position degrees: 48...56 Testina:

1st rack travel in: 9.90 rpm : 1440...1450 Speed 2nd rack travel in: 4.00

Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring Speed rpm: 300 Rack travel in mm: 7.9

Testina: Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 300 Rack travel in mm : 7.80...8.00

TORQUE CONTROL Dimension a mm : 0.60 Torque control curve - 1st version 1st speed rom : 1300
Rack travel in m: 10.90...11.00
2nd speed rom : 800
Rack travel in m: 11.50...11.60 3rd speed rpm : 1000

Rack travel in m: 11.10...11.30

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version rpm : 800 Speed Del.quantity cm3/: 67.5...70.5 1000 s: (65.0...73.0) Spread

cm3 : 5.00 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90 rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 80.0...90.0 1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.80...8.00 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.50)

:

Remarks:

Note remarks

Test sheet : MAN 7,2 L 1 : 28.11.88 Edition : 27.10.88 Replaces

Test oil : ISO-4113

Combination no. : 0 403 456 101

Injection pump

Pump designation : PES6MW100/321RS1153

: 0 413 406 145 EP type number

Governor

Governor design: RQ250/1300MW84 : 0 420 082 029 Governer no.

Customer-spec. information Customer : MAN

: D 0826 LF Engine

: 165.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 : (2.95...3.15) Prestroke mm Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.50...11.60

Del.guantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1440 : 8.70...9.10 travel mm

rpm : 1360 2nd speed : 6.30...6.50 travel mm

rpm : 380 3rd speed : 4.10...4.70 travel mm rpm : 250 4th speed

travel mm : 1.50...1.90

GUIDE SLEEVE POSITION Control-lever position

Dearee: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1000

: 133.0...135.0 Del.quantity 1000 : (131.0...137.0) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 26...34 rpm : 800 Setting point: Speed Del.quantity cm3/: 131.0...134.0 rpm : 600 Speed Rack travel in mm: 20.0 1000 s: (128.5...136.5) Aneroid pressure h: 1000 Speed rpm : 1300 Del.quantity cm3/ : 132.5...135.5 1000 s: (130.0...138.0) Testing: 1st rack travel in: 10.50 Speed rpm : 1345...1360 2nd rack travel in: 4.00 Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) Speed rpm: 1440...1460 4th rack travel in: 1530 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever BREAKAWAY position degrees: 6...14 Setting point w/out bumper spring 1st version rpm : 250 1mm rack travel less than Speed Rack travel in mm: 5.0 full load rack tr: 10.50 rpm : 1345...1360 Testing: Speed : 100 Speed rem Minimum rack trave: 7.00 STARTING FUEL DELIVERY rpm : 250 Rack travel in mm : 4.90...5.10 Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0 1000 s: (127.0...143.0) Aneroid/Altitude Compensator Test LOW IDLE 1st version rpm : 250 Setting Speed : 500 Rack travel in mm : 4.90...5.10 rom Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) Spread cm3: 3.50 1000 s: (5.50) Pressure hPa : 180 Rack travel mm : 9.40...9.50 Measurement 1/min: 500 Speed Remarks: 1st pressure hPa : -Rack travel in m: 9.10...9.20 2nd pressure hPa : 385 Setting and blocking of pointer of Rack travel in m: 10.70...11.00 start-of-delivery sensor on cyl. 1 3rd pressure hPa : 1000 start of delivery Rack travel in m: 11.50...11.60 START CUT-OUT 1/min: 180 (200) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1000

Note remarks

: MAN 7,2 L 2 Test sheet : 28.04.89 Edition

Replaces

Test oil : ISO-4113

: 0 403 456 103 Combination no.

Injection pump

Pump designation : PES6MW100/321RS1153

EP type number : 0 413 406 145

Governor

Governor design. : RQV250...1100MW83-1

: 0 420 083 182 Governer no.

: 2-7947 Cust. part no.

Customer-spec. information Customer : MAN

: D 0826 L/204 Engine

1st version kW : 150.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15)
Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 800 1st speed

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 13.2...13.4

100 s: (13.0...13.6)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 4.8...5.0 Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1210 : 11.10...11.50 travel mm rom : 1150 2nd speed

: 10.20...10.40 travel mm

550 3rd speed rpm:

3.20...3.80 travel mm : 250

4th speed rpm

: 1.10...1.50 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 800 Speed Aneroid pressure h: 1000

Del.quantity : 132.0...136.0)

Spread cm3 : 3.50 1000 : (6.00) RATED SPEED

1st version Control Lever

position degrees: 54...62

Testing:

1st rack travel in: 10.40 Speed rpm: 1140...1150 2nd rack travel in: 4.00

rpm : 1195...1225 Speed 4th rack travel in: 1300

Speed rom : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 13...21

Setting point w/out bumper spring

rpm Rack travel in mm: 4.9

Testina:

rpm : 100 Speed Minimum rack trave: 7.00 rpm : 250 Speed

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 310...400 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 220 Pressure

: 9.10...9.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.80...8.90

2nd pressure hPa : 480

Rack travel in m: 10.70...11.00

3rd pressure hPa : 1000

Rack travel in m: 11.40...11.50

START CUT-OUT

1/min: 180 (200) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 600 Speed

rpm

Del.quantity cm3/: 129.0...132.0 1000 s: (126.5...134.5)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: 1000

Speed rpm : 1100 Del.quantity cm3/ : 131.5...134.5 1000 s: (129.0...137.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0

1000 s: (72.0...78.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0 1000 s: (127.0...143.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : MAN 7,20 Edition : 07.04.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 456 104

Injection pump

Pump designation : PES6MW100/321RS1180

: 0 413 406 163 EP type number

Governor

Governor design. : RQ250/1300MW84-1 : 0 420 082 037 Governer no.

Customer-spec. information Customer : MAN

Engine : D 0826 LUH

: 157.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack trave in mm: 11.60...11.70

Del.guantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3 Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1320 1st speed

: 8.60...9.00 travel mm rpm : 1260 2nd speed

: 6.50...6.70 rpm : 350 travel mm

3rd speed

: 3.40...4.00 travel mm rpm : 250 4th speed

: 1.50...2.10 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

: 126.0...128.0 Del.quantity

1000 : (124.0...130.0) Spread cm3

: 3.50 : (6.00) 1000

GO2

RATED SPEED 1st version Control lever position degrees: 26...34 Setting point: Speed rpm : 600 Rack travel in mm : 20.0 Speed Testing: 1st rack travel in: 10.60 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 rpm : 1305...1335 Speed 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 6...14 Setting point w/out bumper spring : 250 rpm Rack travel in mm: 5.3 Testing: rpm : 100 Speed Minimum rack trave: 7.30 rpm Rack travel in mm : 5.20...5.40 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 200 Pressure : 9.60...9.70 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.40 2nd pressure hPa : 400 Rack travel in m: 10.90...11.20 3rd pressure hPa : 1000 Rack travel in m: 11.60...11.70 START CUT-OUT $1/\min : 180 (200)$ Speed FUEL DELIVERY CHARACTERISTICS 1st version

Speed rpm : 600 Del.quantity cm3/: 123.0...126.0 1000 s: (120.5...128.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: 1000 Speed rpm : 1200 Del.quantity cm3/ : 125.5...128.5 1000 s: (123.0...131.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1245...1260 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE Speed rpm : 250
Rack travel in mm : 5.20...5.40
Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Aneroid pressure h: 1000

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 C Test sheet : 07.02.89 Edition Replaces : 06.04.88 Test oil : ISO-4113 : 0 403 466 101 Combination no. Injection pump Pump designation : PES6MW100/120RS1137 : 0 413 406 131 EP type number Governor Governor design. : RSV400...1250MWZA319 : 0 420 085 059 Governer no. Customer-spec. information : CUMMINS/US Customer : 6 CTA-8.3 L Engine : 188.0 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 947 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test Lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00x2.00x600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

: 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1250 1st speed Rack travel in mm : 14.00...14.10 Del.quantity cm3/: 14.4...14.6 100 s: (14.2...14.8) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 400.0 Rack travel in mm: 7.9...8.0 Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed Del.quantity : 144.5...146.5 1000 : (142.5...148.5) Spread : 3.50 cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 50...58 Setting point: Speed rpm

Rack travel in mm: 0.6

Testing:

x Lenath mm

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

1st rack travel in: 13.00 Speed : 1290...1300 rpm 2nd rack travel in: 4.00

: 1380...1410 Speed rom

4th rack travel in: 1450

Speed rom : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 7.9

Testing:

Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 7.90...8.00

SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 139.0...142.0

1000 s: (136.5...144.5) cm3 : 5.00

Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed : 400 rpm

Rack travel in mm : 7.90...8.00 Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

G05

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Starting/full-load transition speed from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : CUM 8,3 C 5 Edition : 07.02.89 Replaces Test oil : ISO-4113 : 0 403 466 101BA Combination no. Phasing : 0-60-120-180-240-300 Phasing Tolerance + - ° Injection pump : 0.50 (0.75) Pump designation : PES6FW100/120RS1137 : 0 413 406 131 EP type number Time to cyl. no. : 1 Governor : RSV400...1250MW2A319 Governor design. BASIC SETTING : 0 420 085 059 Governer no. 1st speed rpm: 1250 : 3811546 Cust. part no. Rack travel in mm : 14.00...14.10 Customer-spec. information Del.quantity cm3/: 14.4...14.6 : CUMMINS/US Customer 100 s: (14.2...14.8) : 6 CTA Engine 1st version kW : 186.0 cm3 : 0.3Spread : 2500 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 500.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.9...2.3 100 s: (1.6...2.5) Test oil inlet temp. °C : 38...42 Overflow valve cm3 : 0.3Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 017 rpm : 800 assembly Speed Rack travel in mm : 0.30...1.00 Opening FULL LOAD DELIV. AT FULL LOAD STOP : 207...210 pressure, bar Orifice plate 1st version diameter mm : 0,6 Speed rpm : 1250 : 144.5...146.5 Del.quantity 1000 : (142.5...148.5) cm3 : 3.50 Test lines : 1 680 750 008 Spread 1000 : (6.00) Outside diameter x Wall thickness RATED SPEED : 6.00X2.00X600 x Length mm 1st version (A) Injection pump setting values Control lever position degrees: 50...58

Setting point:

rpm

Rack travel in mm : 0.6

Speed

Insp. values in parentheses Set equal delivery quant. per values ___

BEGINNING OF DELIVERY

G06

Testing: 1st rack travel in: 13.00 rpm : 1285...1295 Speed 2nd rack travel in: 4.00 Speed rpm : 1370...1400 4th rack travel in: 1450 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rpm : 500 Rack travel in mm: 8.0 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 500 Rack travel in mm : 7.90...8.10 SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.00 rpm : 1285...1295 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm : 500 Rack travel in mm : 7.90...8.10 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Starting/full-load transition speed from holding magnet = 500 1/min.

GD7

Note remarks

Test sheet : CUM 8,3 E 1 Edition : 07.02.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 466 107DA

Injection pump

Pump designation : PES6MW100/120RS1148

EP type number : 0 413 406 143

Governor

: RSV400...900MW7A319-Governor design.

: 0 420 085 082 Governer no.

Cust. part no. : 3909342

Customer-spec. information : CUMMINS/US Customer

Engine : 6 CTA

: 171.0 1st version kW Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.60...3.70 Prestroke mm

: (3.55...3.75) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 17.9...18.1

100 s: (17.7...18.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm: 5.9...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 750 : 179.0...181.0 Del.quantity

1000 : (177.0...183.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Setting point:

: 800 Speed rpm

Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.00 Speed rpm : 790...800 2nd rack travel in: 4.00 rpm : 825...855 Speed 4th rack travel in: 1000 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.9 Testing: : 100 Speed rpm Minimum rack trave: 19.00 Speed rpm: 400 Rack travel in mm : 5.90...6.00 SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 speed rpm : 790...800 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.90...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 1000 s: (5.50) Spread Remarks: Start-of-delivery mark 9° cam angle

after start of delivery cyl. 1.

G09

Starting/full-load transition speed

from holding magnet = 500 1/min.

Note remarks

Test sheet : CUM 8,3 C11 : 07.02.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 466 110

Injection pump

Pump designation : PES6MW100/120RS1137 : 0 413 406 131

EP type number

Governor

Governor design. : RSV500...1250MW2A319

Governer no.

: 0 420 085 102

Cust. part no. : 3915688

Customer-spec. information Customer : CUMMINS/US

: 6 CTA-8.3 L Engine

1st version kW : 171.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 13.4...13.6

100 s: (13.2...13.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 500.0 2nd speed

Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 134.0...136.0 Del.quantity

1000 : (132.0...138.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Setting point: Speed Rack travel in mm: 0.6 Testing: 1st rack travel in: 11.80 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1380...1410 Speed

LOW IDLE 1 Control Lever position degrees: 23...31

Speed rpm : 0.30...1.70

Setting point w/out bumper spring rpm : 500 Rack travel in mm : 6.6

4th rack travel in: 1550

Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed

rpm : 500 Rack travel in mm : 6.50...6.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 750 Del.quantity cm3/: 126.5...129.5

1000 s: (124.0...132.0)

Spread cm3 : 5.001000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80 rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Del.quantity cm3/: 125.0...145.0

1000 s: (122.0...148.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500 Rack travel in mm : 6.50...6.70

G11

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet Edition : CUM 8,3 C 7 : 07.02.89

Replaces

: ISO-4113 Test oil

: 0 403 466 111 Combination no.

Injection pump

Pump designation : PES6MW100/120RS1137

: 0 413 406 131 EP type number

Governor

: RSV400...1250MW2A319 Governor design.

: 0 420 085 103 Governer no.

: 3915969 Cust. part no.

Customer-spec. information Customer : CUMMINS/US

: 6 CTA-8.3 L Engine

: 188.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 14.4...14.6

100 s: (14.2...14.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 144.5...146.5 Del.quantity

1000 : (142.5...148.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.00

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm : 1380...1410 4th rack travel in: 1450

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 8.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 400

Rack travel in mm : 7.90...8.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/: 139.0...142.0

1000 s: (136.5...144.5)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 125.0...145.0

1000 s: (122.0...148.0)

Pack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 7.90...8.10

Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Starting/full-load transition speed from holding magnet = 500 1/min.

G13

Note remarks

: CUM 8,3 C10 Test sheet Edition : 22.12.88

Replaces

: ISO-4113 Test oil

: 0 403 466 112 Combination no.

Injection pump

: PES6MW100/120RS1137 Pump designation

EP type number

: 0 413 406 131

Governor

Governor design. : RSV425...1100MW2A319

Governer no.

: 0 420 085 104

Cust. part no.

: 3915970

Customer-spec. information

: CUMMINS/US Customer

: 6 CTA-8.3 L Engine

1st version kW

: 188.0

: 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 : (3.45...3.65) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 14.2...14.4

100 s: (14.0...14.6)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 425.0 Rack travel in mm : 7.7...7.9 Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 142.0...144.0 Del.quantity

1000 : (140.0...146.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Setting point:

: 800 Speed rom

Rack travel in mm: 0.6 Testing: 1st rack travel in: 13.10 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1215...1245 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 425 Speed Rack travel in mm: 7.8 Testing: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 425 SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00

Rack travel in mm : 7.70...7.90

TORQUE CONTROL Dimension a mm : 0.60 Torque control curve – 1st version 1st speed rpm : 1100 Rack travel in m: 14.10...14.20 2nd speed rpm : 750 Rack travel in m: 14.70...14.80 3rd speed rpm : 900 Rack travel in m: 14.30...14.60

FUEL DELIVERY CHARACTERISTICS

1st version : 750 Speed rom Del.quantity cm3/: 148.5...151.5 1000 s: (146.0...154.0) cm3 : 5.00Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425 Rack travel in mm : 7.70...7.90 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5) cm3 : 3.50 Spread

Remarks:

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

1000 s: (5.50)

Starting/full-load transition speed from holding magnet = 500 1/min.

Test pressure, bar: 30...32 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : CUM 8,3 H 2 : 07.02.89 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 466 113 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° Injection pump : 0.50 (0.75) Pump designation: PES6MW100/120RS1137-Time to cyl. no. : 1 EP type number : 0 413 406 157 Governor BASIC SETTING Governor design. : RSV450...1100Mw2A319 1st speed rpm: 750: 0 420 085 114 Governer no. Rack travel in mm : 14.00...14.10 : 3195686 Cust. part no. Del.quantity cm3/: 15.0...15.2 Customer-spec. information 100 s: (14.8...15.4) Customer : CUMMINS/US Engine : 6 CTA Spread cm3 : 0.3: 2200 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 450.02nd speed Test oil Rack travel in mm: 6.9...7.1 inlet temp. °C : 38...42 Del.guantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Overflow valve Spread 100 s: (0.5) : 9 410 270 183 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -3 Test nozzle holder : 1 688 901 017 rpm : 800 assembly Speed Rack travel in mm : 0.30...1.00 **Opening** : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar Orifice plate 1st version rpm : 750 : 150.5...152.5 diameter mm : 0,6 Speed Del.quantity 1000 : (148.5...154.5) : 1 680 750 008 Spread cm3 : 3.50 : (6.00) 1000 RATED SPEED

1st version

Control lever

Setting point:

Speed

position degrees: 42...50

rpm

Rack travel in mm: 0.6

Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

G16

Testina: 1st rack travel in: 10.90 Speed rpm : 1150...1160 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1370 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 450 Rack travel in mm : 7.0

Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 450 Rack travel in mm : 6.90...7.10

SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 14.00...14.10 2nd speed rpm : 1100 Rack travel in m: 12.50...12.70 3rd speed rpm : 950 Rack travel in m: 13.20...13.60

FUEL DELIVERY CHARACTERISTICS

1st version : 1100 Speed rom Del.quantity cm3/: 130.5...133.5 1000 s: (128.0...136.0) Spread cm3 : 5.00 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 10.90

rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm: 19.00...21.00 LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Starting/full-load transition speed from holding magnet = 500 1/min.

G17

Note remarks

Test sheet : CUM 8,3 C 8 Edition : 07.02.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 466 115

Injection pump

Pump designation : PES6MW100/120RS1137

EP type number : 0 413 406 131

Governor

: RSV400...1050MW2A319 Governor design.

-11

Governer no.

: 0 420 085 107

Cust. part no. : 3915972

Customer-spec. information : CUMMINS/US Customer

Engine : 6 CTA

1st version kW : 165.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 750

Rack travel in mm: 14.20...14.30

Del.guantity cm3/: 15.1...15.3

100 s: (14.9...15.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 7.3...7.5 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

151.0...153.0 Del.quantity

: (149.0...155.0) : 3.50 1000

Spread cm3

> 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testina:

1st rack travel in: 11.10 Speed rpm : 1090...1100 2nd rack travel in: 4.00

Speed rpm : 1150...1180 4th rack travel in: 1320

rpm : 0.30...1.70Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm Rack travel in mm: 7.4

Testing:

Speed COM Minimum rack trave: 19.00

: 400 Speed rpm

Rack travel in mm : 7.30...7.50

Rack travel in mm: 2.00

Speed : 490...560 rom

SET IDLE AUXILIARY SPRING

Rack travel in mm: 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 14.20...14.30

2nd speed rpm : 1050

Rack travel in m: 12.20...12.40 3rd speed rpm: 950

Rack travel in m: 13.00...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 1050 Speed rpm

Del.quantity cm3/: 123.5...126.5 1000 s: (121.0...129.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

G19

: 100 Speed rpm

Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 7.30...7.50 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Starting/full-load transition speed from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 E 2

: 07.02.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 466 116

Injection pump

Pump designation : PES6MW100/120RS1148

EP type number : 0 413 406 143

Governor

Governor design. : RSV400...900MW7A319-

: 0 420 085 108 Governer no.

Cust. part no. : 3914871

Customer-spec. information Customer : CLMMINS/US

Engine : 6 CTA : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.60...3.70 Prestroke mm : (3.55...3.75)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 900

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 18.3...18.5

100 s: (18.1...18.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm: 6.2...6.4

Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-Lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 183.0...185.0 Del.quantity

1000 : (181.0...187.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 55...63

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.50 Speed rpm : 940...950 2nd rack travel in: 4.00 rpm : 960...990 Speed 4th rack travel in: 1125 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 25...33 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 6.3 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 6.20...6.40 Rack travel in mm : 2.00 rpm : 430...490 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 181.0...185.0 1000 s: (179.0...187.0) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.50 rpm : 940...950 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 400 Rack travel in mm : 6.20...6.40

G21

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 1000 s: (5.50)

Spread

Remarks:

Start-of-delivery mark 9° cam angle after start of delivery cyl. 1.

Starting/full-load transition speed from holding magnet = 500 1/min.

Note remarks

Test sheet : MB 4,0 A 28 Edition : 24.02.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 474 002

Injection pump

Pump designation : PES4MW100/720RS1127

EP type number : 0 413 404 103

Governor

Governor design. : RSV350...1200MWDA330

: 0 420 085 101 Governer no.

Customer-spec. information

Customer : 08

Engine : 0M364A

1st version kW : 66.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 11.30...11.40

Del.guantity cm3/: 7.1...7.3

100 s: (6.9...7.5)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.6 Del.quantity cm3/ : 0.9...1.1

100 s: (0.5...1.4)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Speed Del.quantity 1000 : 71.0...73.0 : (69.0...75.0)

: 3.50

Spread cm3

: (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.30

rpm : 1240...1245 Speed

G22

2nd rack travel in: 4.00 Spread cm3 : 3.50Speed rpm : 1283...1296 1000 s: (5.00) 3rd rack travel in: 4.00 Speed rpm : 1320...1350 4th rack travel in: 1450 Speed rpm : 0.30...1.70 Remarks: 5th rack travel in: 1240...1255 rpm : 10.30Speed LOW IDLE 1 Setting point w/out bumper spring Speed rom Rack travel in mm: 7.3 Testing: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 7.00...7.60 Rack travel in mm: 2.00 rpm : 415...475 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 11.30...11.40 rpm : 600 2nd speed Rack travel in m: 12.10...12.20 3rd speed rpm : 900 Rack travel in m: 11.70...11.80 h speed rpm : 950 4th speed Rack travel in m: 11.50...11.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 58.0...60.0 1000 s: (56.0...62.0) rpm : 900 Speed Del.quantity cm3/: 73.0...75.0 1000 s: (71.0...77.0) cm3 : 5.00Spread 1000 s: (7.00) STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) LOW IDLE Speed rpm : 350 Rack travel in mm : 7.00...7.60 Del.quantity cm3/: 9.0...11.0 1000 s: (5.5...14.5)

Note remarks

Test sheet : MB 4,0 A 24 Edition : 07.02.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 474 005

Injection pump

: PES4MW100/720RS1127 Pump designation

EP type number : 0 413 404 103

Governor

Governor design. : RSV350...750MW0A318-

: 0 420 085 089 Governer no.

Customer-spec. information

Customer : DB

: 0M364A Engine

: 63.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 firing order

Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rom: 700

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.5...7.7

Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 95.0...97.0 Del.quantity 1000 : (93.0...99.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.80

rpm : 750...755 Speed

2nd rack travel in: 4.00 rpm : 780...793 Speed

4th rack travel in: 950

: 0.30...1.40 Speed rpm

LOW IDLE 1 Control lever

position degrees: 11...19

Setting point w/out bumper spring

Speed rpm: 350
Rack travel in mm: 7.5
Speed rpm: 350
Rack travel in mm: 7.50...7.60

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.50...7.70
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Note remarks

Test sheet : VOL 4,5 M : 07.04.89 Edition : 18.10.88 Replaces Test oil : ISO-4113

Combination no. : 0 403 474 007

Injection pump

Pump designation: PES4MW100/320RS1175

: 0 413 404 105 EP type number

Governor

Governor design. : RSV300...1000MW1A315

: 0 420 085 099 Governer no.

Customer-spec. information Customer : VOLVO-BM

Engine : TD45

1st version kW : 84.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2 Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 8.2...8.4 Del.quantity cm3/: 1.3...1.7

100 s: (1.0...1.9) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

Del.quantity : 110.0...112.0 1000 : (108.0...114.0)

cm3 Spread : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.70

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

: 1070...1100 Speed rom

3rd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1200 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.7 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm Rack travel in mm : 7.60...7.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 1000 rpm Del.quantity cm3/: 111.5...114.5 1000 s: (109.0...117.0) Spread cm3 : 5.50 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 Speed rpm : 1040...1050 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 300 Speed Rack travel in mm : 8.20...8.40 Del.quantity cm3/: 13.0...17.0 1000 s: (10.5...19.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks:

Note remarks

Test sheet : MB 6,0 D 63 Edition : 03.03.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 027

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RSV350...1300MW0A316 -6

: 0 420 085 098 Governer no.

Customer-spec. information

Customer : DB

Engine : 0M366A

: 125.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

G28

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 7.2...7.4

100 s: (7.0...7.6)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.6 Del.quantity cm3/ : 0.9...1.1 100 s: (0.7...1.3)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

: 72.0...74.0 Del.quantity 1000 : (70.0...76.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.70

rpm : 1340...1345 Speed Speed rpm 2nd rack travel in: 4.00 Rack travel in mm : 7.00...7.60 rpm : 1380...1393 Del.quantity cm3/: 9.0...11.0 Speed 1000 s: (7.0...13.0) cm3 : 3.50 1000 s: (5.50) 3rd rack travel in: 4.00 Speed rpm : 1400...1430 4th rack travel in: 1450 Spread Speed rpm : 0.30...1.70 5th rack travel in: 1345...1360 Remarks: rom : 9.70Speed LOW IDLE 1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 7.00...7.60 Rack travel in mm : 2.00 : 445...505 Speed riom . TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.70...10.80

2nd speed rpm : 700

Rack travel in m: 12.30...12.40

3rd speed rpm : 825 Rack travel in m: 11.90...12.10 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 700 Del.quantity cm3/ : 69.0...71.0 1000 s: (67.0...73.0) Spread cm3 : 5.001000 s: (7.0) rpm_ : 825 Speed Del.quantity cm3/: 73.0...75.0 1000 s: (71.0...77.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1340...1345 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE

Note remarks

Test sheet : MB 6,0 D 31 : 05.02.88 Edition : 02.11.87 Replaces Test oil : ISO-4113

: 0 403 476 054 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

: RSV350...1200MW1A316 Governor design.

: 0 420 085 076 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: OM366A Engine

: 115.0 1st version kW : 2400 Rated speed : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm : (3.65...3.85)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.60...9.70

Del.guantity cm3/: 6.0...6.2

100 s: (5.8...6.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm : 6.30...6.90

Del.quantity cm3/: 0.9...1.1 100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 15.0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 60.0...62.0

1000 : (58.0...64.0)

Spread : 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing: 1st rack travel in: 8.60 rpm : 1240...1245 Speed 2nd rack travel in: 4.00 Speed rpm: 1263...1276 3rd rack travel in: 4.00 rpm : 1290...1320 Speed 4th rack travel in: 1450 rpm : 0.30...1.70 5th rack travel in: 1240...1255 rom : 8.60 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 350° Rack travel in mm : 6.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00 Speed rpm : 415...475 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9.60...9.70 2nd speed rpm : 800 Rack travel in m: 10.50...10.60 3rd speed rpm : 950 Rack travel in m: 9.90...10.10 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 59.0...61.0 1000 s: (57.0...63.0) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.60 rpm : 1240...1245 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00

H03

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.90
Del.quantity cm3/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

Note remarks

Test sheet : MB 6,0 0 46 Edition : 03.03.89 Replaces : 12.08.88 Test oil : ISO-4113

Combination no. : 0 403 476 055

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

: RSV350...1200MW1A316 Governor design.

-8

: 0 420 085 097 Governer no.

Customer-spec. information

Customer : DB

Engine : 0M366A

: 92.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 6.2...6.4

100 s: (6.0...6.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.3...6.9

Del.quantity cm3/: 0.9...1.1 100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 15.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Del.quantity : 62.0...64.0 1000 : (60.0...66.0)

: 3.50 cm3 Spread

: (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

rpm Speed

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.80

rpm : 1235...1240 Speed 2nd rack travel in: 4.00 Speed rpm : 1270...1283 3rd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1450 rpm : 0.30...1.70Speed 5th rack travel in: 1245...1260 rpm : 8.80 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 6.30...6.90 Rack travel in mm : 2.00 rpm : 415...475 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9.80...9.90 2nd speed rpm : 800 Rack travel in m: 10.70...10.80 3rd speed rpm : 950 Rack travel in m: 10.10...10.30 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 61.0...63.0 1000 s: (59.0...65.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.80 rpm : 1235...1240 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.90
Del.quantity cm3/: 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 37 Edition : 03.03.89 Replaces :Test oil : ISO-4113 Combination no. : 0 403 476 056

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RSV350...1200MW0A316

Governer no. : 0 420 085 090

Customer-spec. information Customer : DB

Engine : OM366A

1st version kW : 100.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80 : (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.1...6.7
Del.quantity cm3/ : 0.9...1.1
100 s: (0.6...1.4)
Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1200

Del.quantity : 69.0...71.0 1000 : (67.0...73.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 58...66

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1280...1293

3rd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1450 Speed rpm : 0.30...1.70 5th rack travel in: 1240...1255 Speed rpm : 9.20 LOW IDLE 1 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 6.10...6.70 Rack travel in mm : 2.00 rom : 415...475 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.20...10.30 2nd speed rpm : 800 Rack travel in m: 11.10...11.20 3rd speed rpm : 900 Rack travel in m: 11.00...11.20 4th speed rpm : 1050 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 69.0...71.0 1000 s: (67.0...73.0) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1240...1245 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 19.00...21.00 LOW IDLE

Remarks:

Note remarks

Test sheet : MB 6,0 D 57 Edition : 07.02.89

Replaces : Test oil : ISO-4113

Combination no. : 0 403 476 059

Injection pump

Pump designation : PES6MW100/720RS1130

EP type number : 0 413 406 122

Governor

Governor design. : RSV750...1250MW0A325

-1

Governer no. : 0 420 085 112

Customer spec. information

Customer : DB

Engine : OM 366 A

1st version kW : 125.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 750.0 Rack travel in mm : 5.6...5.7 Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Dearee: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1230

Del.quantity : 78.0...80.0 1000 : (76.0...82.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.90

Speed rpm : 1270...1275

2nd rack travel in: 4.00

Speed rpm : 1295...1310

3rd rack travel in: 4.00 Speed rpm : 13011315 4th rack travel in: 1350 Speed rpm : 0.301.70 5th rack travel in: 12761280 Speed rpm : 9.90
LOW IDLE 1 Control Lever position degrees: 7482 Setting point w/out bumper spring Speed rpm : 750 Rack travel in mm : 5.6
Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 750 Rack travel in mm : 5.605.70
SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00
FUEL DELIVERY CHARACTERISTICS
1st version Speed rpm : 600 Del.quantity cm3/ : 55.059.0 1000 s: (53.061.0) Spread cm3 : 5.00 1000 s: (7.0)
BREAKAWAY
1st version 1mm rack travel less than
full load rack tr: 9.90 Speed rpm : 12701275
STARTING FUEL DELIVERY
Speed rpm : 100
LOW IDLE Speed rpm : 750 Pack travel in mm : 5.60 5.70
Del.quantity cm3/: 9.013.0 1000 s: (7.015.0) Spread cm3: 3.50
1000 s: (5.00) Remarks:

Note remarks

Test sheet : KHD 6,1 M : 29.03.89 Edition

Replaces

Test oil : ISO-4113

: 0 403 476 060 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1161

: 0 413 406 148 EP type number

Governor

Governor design. : RSV325...1150MW5A327

Governer no. : 0 420 085 084

Customer-spec, information Customer : KHD

: BF6L913C Engine

: 134.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.45...3.55 Prestroke mm : (3.40...3.60)

Rack travel in mm : 9.00...12.00

H10

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 12.3...12.5

100 s: (12.1...12.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 325.0 Rack travel in mm : 4.9...5.0

Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 1000

: 123.0...125.0 1000 : (121.0...127.0) Del.quantity

: 3.50 Spread cm3 : (6.00) 1000

RATED SPEED

1st version Control lever

position degrees: 52...60

Setting point:

: 800 Speed rom Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.80

rpm : 1200...1210 Speed 2nd rack travel in: 4.00

Speed rpm : 1245...1275

4th rack travel in: 1440 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 18...25 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 4.7 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 325 Rack travel in mm : 4.70...4.80 Rack travel in mm : 2.00 Speed : 455...515 rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.80...12.90 ad speed rpm : 800 2nd speed Rack travel in m: 13.20...13.30 3rd speed rpm : 900 Rack travel in m: 13.00...13.20 4th speed rpm : 1000 Rack travel in m: 12.80...13.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 500 Rack travel mm : 11.60...11.70 Measurement 1/min: 500 Speed 1st pressure hPa : 1000 Rack travel in m: 13.20...13.30 2nd pressure hPa : -Rack travel in m: 10.50...10.60 3rd pressure hPa : 650 Rack travel in m: 12.30...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 800 Speed rpm Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0) Spread cm3 : 5.00 1000 s: (7.0)

Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0 1000 s: (72.0...78.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80 Speed rpm : 1200...1210

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.90...5.00
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

H11

Aneroid pressure h: -

Note remarks

Test sheet : MB 6,0 D 39 : 03.03.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 062

Injection pump

Pump designation : PES6MW100/72DRS1172

EP type number : 0 413 406 155

Governor

: RSV350...1300MW0A329 Governor design.

: 0 420 085 091 Governer no.

Customer-spec. information

Customer : DB

: DM 366 LA Engine

: 169.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 19.00...21.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rom : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1000

: 105.0...107.0 Del.quantity

1000 : (103.0...109.0) : 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 46...54

Setting point:

rpm Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.40

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

Speed rpm : 1395...1425 4th rack travel in: 1450 Speed rpm : 0.30...1.70 LOW IDLE 1 Control Lever position degrees: 12...20 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6.0 Testina: Speed : 100 rom Minimum rack trave: 7.60 rpm : 350 Speed Rack travel in mm : 5.90...6.10 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 10.70...10.80 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 450 Rack travel in m: 11.90...12.10 2nd pressure hPa : 650 Rack travel in m: 13.40...13.60 3rd pressure hPa : 1000 Rack travel in m: 14.40...14.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 900 Del.quantity cm3/ : 98.0...101.0 1000 s: (95.5...103.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 31.0...33.0

1000 s: (29.0...35.0) cm3 : 3.50 1000 s: (6.00) 1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1320...1330
STARTING FUEL DELIVERY

Speed rpm : 100
Del.guantity cm3/: 90.0...100.0

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Remarks:

H13

Spread

BREAKAWAY

Note remarks

: MB 5,7 A 18 : 30.09.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 0 403 476 063 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1125

EP type number : 0 413 406 119

Governor

Governor design. : RSV350...1300MW0A329

: 0 420 085 094 Governer no.

Customer-spec. information Customer : DB

: OM 362 LA Engine

: 134.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test vil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - 0

BASIC SETTING

rom: 12801st speed

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.0 Del.quantity cm3/ : 1.1...1.5

100 s: (0.9...1.7) cm3 : 0.3 100 p: (0.5) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 900

Del.quantity : 90.0....0.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 55...63

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.80

rpm : 1330...1340 Speed

2nd rack travel in: 4.00

Speed rpm : 1400...1430 4th rack travel in: 1560 Speed rpm : 0.30...1.70 LOW IDLE 1 Control Lever position degrees: 12...20 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 5.9 Testing: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 5.90...6.00 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 900 : 500 Pressure : 11.80...11.90 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 350 Rack travel in m: 10.60...10.70 2nd pressure hPa : 450 Rack travel in m: 11.30...11.60 3rd pressure hPa : -Rack travel in m: 9.70...9.80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 : 800 Speed rpm Del.quantity cm3/: 88.5...91.5 1000 s: (86.0...94.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed **TOM**

Del.quantity cm3/: 46.0...48.0 1000 s: (44.0...50.0)

1mm rack travel less than full load rack tr: 10.80 Speed rpm : 1330...1340 STARTING FUEL DELIVERY : 100 Speed rom Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0) LOW IDLE rpm : 350 Speed Rack travel in mm : 5.90...6.00 Del.quantity cm3/: 11.0...15.0 1000 s: (9.0...17.0) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: :

BREAKAWAY

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 49 Edition : 30.09.88 Replaces

Combination no. : 0 403 476 064

Injection pump Pump designation : PES6MW100/720RS1129 EP type number : 0 413 406 121

: ISO-4113

Governor Governor design. : RSV350...1300MW0A329

: 0 420 085 095 Governer no.

Customer—spec. information Customer : DB

Engine : OM 366 LA

: 150.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.70...3.80 : (3.65...3.85) Prestroke mm

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed Aneroid pressure h: 900

Anerota prostation : 97.0...77.0 | 1000 : (95.0...101.0) | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Setting point:

Speed rom Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.50

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

Speed rpm : 1385...1415 4th rack travel in: 1450 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.6 Testina: Speed rpm : 100 Minimum rack trave: 7.60 rpm : 350 Speed Rack travel in mm : 5.50...5.70 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 9.50...9.60

Rack travel mm

1/min: 500 Speed 1st pressure hPa : 175 Rack travel in m: 10.00...10.10

Measurement

2nd pressure hPa : 300 Rack travel in m: 10.80...11.10 3rd pressure hPa : 900

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed : 750 rpm Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -: 500

Speed rpm Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0)

BREAKAWAY

1st version

H17

1mm rack travel less than

full load rack tr: 10.50 Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 8.0...12.0 1000 s: (6.0...14.0) cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MB 6,0 D 48 Edition : 07.02.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 065

Injection pump

Pump designation : PES6MW100/720RS1129-

EP type number : 0 413 406 140

Governor

Governor design. : RSV350...1300MW0A331

: 0 420 085 096 Governer no.

Customer-spec. information Customer : DB

: OM 366 LA Engine

: 150.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5) cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 6.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed Aneroid pressure h: 900

Del.quantity : y3.0....97.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Setting point:

Speed rpm Rack travel in mm : 0.6

Testina:

1st rack travel in: 10.20 rpm : 1320...1330 Speed 2nd rack travel in: 4.00

rpm : 1385...1415 Speed

4th rack travel in: 1450

rom : 0.30...1.70Speed

LOW IDLE 1 Control Lever

position degrees: 26...34

Setting point w/out bumper spring

: 350 rpm Rack travel in mm : 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.60 rpm : 350

Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : -Pressure

Rack travel mm : 9.20...9.30

Measurement

1/min: 500 Speed

1st pressure hPa : 175

Rack travel in m: 9.80...9.90

2nd pressure hPa : 300

Rack travel in m: 10.80...11.10 3rd pressure hPa : 900

Rack travel in m: 11.20...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 750 Speed rpm

Del.quantity cm3/: 83.0...87.0 1000 s: (81.0...89.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed rom

Del.quantity cm3/: 46.0...48.0 1000 s: (44.0...50.0)

BREAKAWAY

H19

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1320...1330 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 500...1999 hPa air pressure.

Note remarks

Test sheet : MB 6,0 D 52 : 24.02.89 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 066

Injection pump

Pump designation : PES6MW100/720RS1130

EP type number : 0 413 406 122

Governor

Governor design. : RSV350...1300Mw0A318

: 0 420 085 100 Governer no.

Customer—spec. information Customer : DB-LKW

Engine : OM 366 A

1st version kW : 130.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 11.00...11.10

Del.guantity cm3/: 8.1...8.3

100 s: (7.9...8.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

: 81.0...83.0 Del.quantity 1000 : (79.0...85.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testina:

1st rack travel in: 10.00

rpm : 1330...1340 Speed 2nd rack travel in: 4.00 rpm : 1400...1430 Speed 4th rack travel in: 1560 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 25...33 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 8.0 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 7.90...8.10 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 750 Speed Del.quantity cm3/: 68.0...71.0 1000 s: (65.5...73.5) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1330...1340 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE Speed rpm : 350 Rack travel in mm : 7.90...8.10 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) cm3 : 3.50 Spread 1000 s: (5.50) Remarks:

Note remarks

: MB 6,0 D 57 : 11.05.89 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 067

Injection pump

Pump designation : PES6MW100/720RS1131

: 0 413 406 123 EP type number

Governor

Governor design. : RSV350...1300MWOA2 Governor no. : 0 420 085 109

Customer-spec. information Customer : DB-NKW

Engine : OM 366 LA

: 150.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85) Rack travel in mm : 9.00...12.00

H22

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.2...6.9 Del.quantity cm3/: 1.0...1.2 100 s: (0.6...1.5) Spread cm3: 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

: 100.0...102.0 Del.quantity 1000 : (98.0...104.0)

cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.60

Speed rpm : 1340...1345 2nd rack travel in: 4.00 rom : 1387...1400 Speed 3rd rack travel in: 4.00 Speed rpm : 1420...1450 4th rack travel in: 1600 Speed rpm : 0.30...1.70 5th rack travel in: 1335...1350 rpm : 11.60 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm: 350 Rack travel in mm: 6.5 Testing: : 100 Speed rpm Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 6.20...6.90 Rack travel in mm: 2.00 rpm : 420...480 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 250 Pressure Rack travel mm : 11.30...11.40 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.80...10.90 2nd pressure hPa : 400 Rack travel in m: 12.10...12.40 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed : 600 rom Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0) cm3 : 5.00 Spread 1000 s: (7.0)

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 500...1999 hPa air pressure.

Speed

Aneroid pressure h: -

rpm : 500

Del.quantity cm3/: 53.0...55.0 1000 s: (51.0...57.0)

Note remarks

: MB 6,0 D 60 : 03.03.89 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 069

Injection pump

Pump designation : PES6MW100/720RS1129

EP type number : 0 413 406 121

Governor

: RSV750...1250Mw0A325 Governor design.

: 0 420 085 115 Governer no.

Customer-spec. information

Customer : DB

: 0M 366 LA Engine

: 146.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1230

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 750.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) Spread

cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1230 : 97.0...99.0 |000 : (95.0...101.0) Del.quantity 1000

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.50

: 1270...1275 Speed rom 2nd rack travel in: 4.00 rpm : 1295...1310 Speed 3rd rack travel in: 4.00 : 1301...1315 Speed rom 4th rack travel in: 1350 Speed rpm : 0.30...1.70 5th rack travel in: 1276...1280 Speed rom : 10.50 LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring rpm : 750 Speed Rack travel in mm: 5.0 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm: 750 Rack travel in mm : 4.90...5.10 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 85.0...89.0 1000 s: (83.0...91.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.50 rpm : 1270...1275 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0) LOW IDLE rpm : 750 beed Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 1000 s: (5.00)

Remarks:

H25

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet Edition

: MB 6,0 D 66 : 31.03.89

Replaces Test oil

: ISO-4113

Combination no.

: 0 403 476 070

Injection pump

Pump designation : PES6MW100/720RS1172

EP type number

: 0 413 406 155

Governor

: RSV350...1300MW0A329 Governor design.

Governer no.

: 0 420 085 116

Customer-spec. information Customer : DB-NKW

Engine

: OM 366 LA

1st version kW : 170.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 19.00...21.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 10.4...10.6

100 s: (10.2...10.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1280 Speed Aneroid pressure h: 1000

: 104.0...106.0 Del.quantity

1000 : (102.0...108.0) cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.40

rpm : 1330...1340 Speed

2nd rack travel in: 4.00

H26

rpm : 1410...1440 Speed 4th rack travel in: 1500 Speed rpm: 0.30...1.70 LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.0 Testing: Speed rpm : 100 Minimum rack trave: 7.60 Speed rpm: 350 Rack travel in mm : 5.90...6.10 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : -Pressure Rack travel mm : 11.70...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : 350 Rack travel in m: 12.60...12.80 2nd pressure hPa : 500 Rack travel in m: 13.70...13.90 3rd pressure hPa : 1000 Rack travel in m: 14.40...14.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 900 Speed

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

H27

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : BAO 13,2 B1 Test sheet : 07.02.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 546 019 Injection pump Pump designation : PE6MW100/320RS1174 : 0 413 506 106 EP type number Governor Governor design. : RQV325...1500MW101 : 0 420 083 167 Governer no. Customer-spec. information Customer : BAUDOUIN : 6 F 11 SRE Engine : 206.0 1st version kW : 3000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina : 172...175 pressure, bar Test Lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00x2.00x600

: 3.45...3.55

: (3.40...3.60)

(A) Injection pump setting values

Set equal delivery quant.

Rack travel in mm : 9.00...12.00

per values ____

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

Insp. values in parentheses

```
: 0-75-120-195-240-315
Phasina
Tolerance + - 0
                  : 0.50 (0.75)
BASIC SETTING
1st speed
              rpm: 1500
Rack travel in mm : 11.10...11.20
Del.quantity cm3/: 11.9...12.1
             100 s: (11.7...12.3)
Spread
             cm3 : 0.3
             100 s: (0.6)
             rpm : 325.0
2nd speed
Rack travel in mm: 7.0...7.2
Del.quantity cm3/: 0.8...1.2
             100 s: (0.5...1.4)
             cm3 : 0.3
Spread
             100 s: (0.5)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
             rpm : 1650
1st speed
                  : 9.40...9.80
  travel mm
             rpm : 1550
2nd speed
                  : 8.50...8.70
  travel mm
             rpm : 600
3rd speed
             : 2.50...3.10
rpm : 325
  travel mm
4th speed
                  : 1.00...1.40
  travel mm
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed
             rpm : 1500
Aneroid pressure h: 700
                 : 119.0...121.0
Del.quantity
            1000
                 : (117.0...123.0)
                  : 3.50
            cm3
Spread
            1000 : (6.00)
RATED SPEED
1st version
Control lever
position degrees: 52...60
1st rack travel in: 10.10
```

Firing order

: 1-4-3-6-5-2

x Length mm

Prestroke mm

rpm : 1540...1550 Aneroid pressure h: -Speed Speed rpm : 500 Del.quantity cm3/: 109.0...111.0 2nd rack travel in: 4.00 rpm : 1625...1655 Speed 4th rack travel in: 1750 1000 s: (107.0...113.0) rom : 0.00...1.00Speed LOW IDLE 1 BREAKAWAY Control lever position degrees: 18...26 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 325 Rack travel in mm: 7.1 full load rack tr: 10.10 rpm : 1540...1550 Speed Testina: : 100 STARTING FUEL DELIVERY Speed rpm Minimum rack trave: 8.50 Speed rpm : 325 Rack travel in mm : 7.00...7.20 rpm : 100 Speed Del.quantity cm3/: 105.0...115.0 1000 s: (102.0...118.0) TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1500 Rack travel in m: 11.10...11.20 LOW IDLE Speed rpm : 325 Rack travel in mm : 7.00...7.20 2nd speed rpm : 800 Rack travel in m: 11.90...12.00 Del.quantity cm3/: 8.0...12.0 3rd speed rpm : 1000 1000 s: (5.5...14.5) Rack travel in m: 11.30...11.50 Spread cm3 : 3.501000 s: (5.50) Aneroid/Altitude Compensator Test Remarks: 1st version Setting : 500 Speed rpm hPa : 500 Pressure : 11.30...11.40 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 700 Rack travel in m: 11.90...12.00 2nd pressure hPa : 600 Rack travel in m: 11.50...11.60 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 800 Speed Del.quantity cm3/: 128.5...131.5 1000 s: (126.0...134.0) cm3 : 5.00 Spread

1000 s: (7.0)

Note remarks

Test sheet : KHD 13,4 E Edition : 14.04.89

Replaces

: ISO-4113 Test oil

: 0 403 548 022 Combination no.

Injection pump

Pump designation : PE8MW100/720LS1149

EP type number : 0 413 508 105

Governor

Governor design. : RQV300...1150MW75-1

: 0 420 083 151 Governer no.

Customer-spec. information Customer : KHD

: F 8L 513 Engine

1st version kW : 188.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

: 1 680 740 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm : (3.05...3.25)

Rack travel in mm : 9.00...12.00

102

Firing order : 1- 8- 7- 2- 6- 5-

Phasing : 0-45-90-135-180-225-270-315

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.3...7.4 Del.quantity cm3/ : 1.1...1.5

100 s: (0.9...1.7)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1200 1st speed

: 8.40...8.60 travel mm

rpm : 1275 2nd speed

: 9.10...9.50 travel mm

rpm : 650 3rd speed : 4.00...4.60 travel mm

rpm : 300 4th speed

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

: 106.0...108.0 Del.quantity

1000 : (104.0...110.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.40 rpm : 1190...1200 Speed 2nd rack travel in: 4.50 rpm : 1260...1290 4th rack travel in: 1400 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.3 Testing: Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 300 Rack travel in mm : 7.30...7.40 CONSTANT REGULATION Speed rpm : 320...420 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.40...11.50 2nd speed rpm : 650 Rack travel in m: 11.80...11.90 3rd speed rpm : 900 Rack travel in m: 11.60...11.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 650 Speed Del.quantity cm3/: 106.0...108.0 1000 s: (104.0...110.0) cm3 : 5.00 Spread 1000 s: (7.0)

BREAKAWAY

J03

1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.30...7.40
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.50 1000 s: (5.50)

:

Remarks:

Note remarks

Test sheet : KHD 13,4d13 Edition : 11.03.88

Replaces

Test oil : ISO-4113

Combination no. : 0 403 548 026

Injection pump

Pump designation : PE8MW100/720LS1128

: 0 413 508 103 EP type number

Governor

Governor design. : RQ300...1150MW63-4

: 0 420 082 031 Governer no.

Customer-spec. information Customer : KHD

Engine : BF 8L 513

: 243.0 1st version kW : 2300 : 2300 Rated speed Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20

: (3.05...3.25)

Rack travel in mm : 9.00...12.00 Firing order : 1-8-7-2-6-5-

Phasing : 0-45-90-135-180-225-

270-315 : 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 12.90...13.00

Del.guantity cm3/: 14.4...14.6

100 s: (14.2...14.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.3...1.7

100 s: (1.1...1.9)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: 1280

: 9.00...9.80 travel mm rpm : 1150

2nd speed : 6.60...6.80 travel mm

3rd speed rpm : 650

: 5.80...6.20 travel mm rpm : 300 4th speed

: 1.20...2.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 800

: 144.0...146.0 Del.quantity

1000 : (142.0...148.0) : 3.50 Spread

cm3 : (6.00) 1000

RATED SPEED

1st version Control lever

position degrees: 30...38

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0

Testing:

1st rack travel in: 11.90

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1265...1295 Speed

4th rack travel in: 1380

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300° Rack travel in mm: 6.6

Testing:

rpm : 100 Speed

Minimum rack trave: 8.20

rpm : 300

Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

rpm : 320...400 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 12.90...13.00

2nd speed rpm : 650

Rack travel in m: 13.60...13.70

3rd speed rpm : 850

Rack travel in m: 13.20...13.40

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom hPa : 480 Pressure

Rack travel mm : 13.00...1310

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 11.70...11.80 2nd pressure hPa : 370 Rack travel in m: 12.10...12.40

3rd pressure hPa : 800 Rack travel in m: 13.60...13.70

START CUT-OUT

1/min : 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 650 Del.quantity cm3/: 151.0...153.0

1000 s: (149.0...155.0)

cm3 : 5.00Spread

1000 s: (7.00)

Aneroid pressure h: -

Speed rpm : 450 Del.quantity cm3/ : 107.0...109.0 1000 s: (105.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.50...6.70 Del.quantity cm3/ : 13.0...17.0 1000 s: (11.0...19.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

Note remarks

Test sheet : KHD 13,4 F : 28.11.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 548 027

Injection pump

Pump designation : PE8MW100/720LS1173

EP type number : 0 413 508 108

Governor

Governor design. : RQV300...1150MW99

Governer no. : 0 420 083 163

Customer-spec. information

Customer : KHD

: F8L513 Engine

1st version kW : 188.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm : (3.05...3.25)

Rack travel in mm : 9.00...12.00

J06

: 1-8-7-2-6-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 11.20...11.30

Del.guantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.1...1.5

100 s: (0.8...1.7)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1280 1st speed

: 11.10...11.50 travel mm

1190 2nd speed rpm :

10.10...10.30 travel mm

rpm : 400 3rd speed

2.90...3.50 travel mm

rpm : 300 : 2.20...2.60 4th speed travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1200 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Del.quantity : 103.0...105.0

1000 : (101.0...107.0)

: 3.50 Spread cm3 : (6,00) 1000

RATED SPEED

1st version Control lever position degrees: 45...53 Testina: 1st rack travel in: 10.20 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1290...1320 Speed 4th rack travel in: 1370 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.1 Testing: Speed rpm : 100 Minimum rack trave: 7.00 Speed rpm: 300 Rack travel in mm : 5.00...5.20 TORQUE CONTROL Dimension a mm : 0.60 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.20...11.30 2nd speed rpm : 650 Rack travel in m: 11.80...11.90 3rd speed rpm : 900 Rack travel in m: 11.50...11.70 START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...111.0) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.20

rpm : 1190...1200

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
 1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

J07

Speed

STARTING FUEL DELIVERY

Note remarks

Test sheet Edition : KHD 13,4015 : 07.02.89 : 11.11.88 Replaces

Test oil : ISO-4113

Combination no. : 0 403 548 031

Injection pump

Pump designation : PE8MW100/720LS1118

EP type number : 0 413 508 102

Governor

Governor design. : RQ300/1150MW63-5 : 0 420 082 035 Governer no.

Customer-spec. information Customer : KHD

: BF8L513 Engine

: 243.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 : (3.05...3.25) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-8-7-2-6-5-

: 0-45-90-135-180-225-Phasing

270-315 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 14.1...14.3

100 s: (13.9...14.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 1.3...1.7

100 s: (1.1...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

travel mm : 9.30...9.70 rpm : 1200

2nd speed travel mm : 6.80...7.00

rpm : 380 3rd speed

: 4.10...4.70 travel mm rpm : 300 4th speed

: 1.90...2.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 1000

Del.quantity : 141.0...143.0

1000 : (139.0...145.0) cm3 : 3.50 1000 : (6.00)

Spread

RATED SPEED

J08

1st version Control lever position degrees: 28...36 Setting point: : 600 Speed rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 11.90 rpm : 1190...1205 Speed 2nd rack travel in: 4.00 rpm : 1275...1305 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring : 300 rom Rack travel in mm: 7.0 Testing: Speed rpm : 100 Minimum rack trave: 8.50 Speed rpm : 300 Rack travel in mm : 6.90...7.10 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.90...13.00 2nd speed rpm : 650 Rack travel in m: 13.60...13.70 3rd speed rpm : 850 Rack travel in m: 13.00...13.30 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : -Pressure Rack travel mm : 11.80...11.90 Measurement 1/min: 500 Speed 1st pressure hPa : 380 Rack travel in m: 12.20...12.50

1st version Aneroid pressure h: 1000 Speed rpm : 650
Del.quantity cm3/ : 146.5...149.5
1000 s: (144.0...152.0)
Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: rpm_ : 450 Speed Del.quantity cm3/: 107.0...109.0 1000 s: (105.0...111.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1190...1205 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 6.90...7.10 Del.quantity cm3/: 13.0...17.0 1000 s: (11.0...19.0) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: :

1/min: 220 (250)

FUEL DELIVERY CHARACTERISTICS

Speed

109

START CUT-OUT

2nd pressure hPa : 480

3rd pressure hPa : 1000

Rack travel in m: 13.10...13.20

Rack travel in m: 13.50...13.60

WE MINIS Rack travel in mm: 4.9...5.1 O) Cetting of injection pump assembly 100 yill Acide diameter ACT VALUES IN MARCHINAGES Proctroke III

1st version Control lever position degrees: 26...34 Setting point: : 600 Speed rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 10.20 rpm : 1190...1205 Speed 2nd rack travel in: 4.00 Speed rpm : 1245...1275 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 5.0 Testing: : 100 Speed rpm Minimum rack trave: 6.50 : 300 Speed rpm Rack travel in mm : 4.90...5.10 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.20...11.30 2nd speed rpm : 650 Rack travel in m: 11.80...11.90 3rd speed rom : 900 Rack travel in m: 11.50...11.80 START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/ : 105.5...108.5 1000 s: (103.0...111.0) cm3 : 5.00 Spread 1000 s: (7.0)

rpm : 1190...1205 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5) Spread cm3: 3.50 1000 s: (5.50) Remarks:

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20

J11

Note remarks

: KHD 13,4 F2 : 31.03.89 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 548 033

Injection pump

Pump designation : PE8MW100/720LS1173

EP type number : 0 413 508 108

Governor

Governor design. : RQV450...1150MW70-1

: 0 420 083 179 Governer no.

Customer-spec. information Customer : KHD

Engine : F8L513

1st version kW : 159.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 740 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm

: (3.05...3.25) Rack travel in mm : 9.00...12.00

: 1-8-7-2-6-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 9.1...9.3

100 s: (8.9...9.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 450.0 2nd speed Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 1.1...1.5

100 s: (0.8...1.7) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1230 1st speed

: 9.50...9.90 travel mm

rpm : 1190 2nd speed

: 8.90...9.10 travel mm

3rd speed rpm : 650

: 2.80...3.40 travel mm

rpm : 450 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 91.0...93.0 Del.quantity

1000 : (89.0...95.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version Control Lever position degrees: 51...59 Testing: 1st rack travel in: 9.20 rpm : 1180...1190 Speed 2nd rack travel in: 4.00 Speed rpm : 1220...1250 4th rack travel in: 1320 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 14...22 Setting point w/out bumper spring Speed rpm : 450 Rack travel in mm: 4.9 Testing: Speed rpm : 100 Minimum rack trave: 6.50 rpm : 450 Speed Rack travel in mm : 4.80...5.00 TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 10.20...10.30 2nd speed rpm : 950 Rack travel in m: 10.60...10.70 rpm : 1050 3rd speed Rack travel in m: 10.20...10.50 START CUT-OUT 1/min: 370 (390) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rom Del.quantity cm3/: 92.5...95.5 1000 s: (90.0...98.0) cm3 : 5.00 1000 s: (7.0) Spread

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 1180...1190

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

Remarks:

J13

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MB 5,7 √13 : 02.05.89 Test sheet Edition : 9.85 Replaces

: ISO-4113 Test oil

: 9 400 085 222 Combination no.

Injection pump

Pump designation : PES6A90D410RS2596 EP type number : 0 410 896 073

Governor

Governor design. : RQV300...1400AB1196L

: 9 420 080 175 Governer no.

Customer-spec. information

: DAIMLER-BENZ BRASIL Customer

Engine : 0M352A

1st version kW : 125.3 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15) Prestroke mm Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 7.1...7.2

100 s: (6.9...7.4)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 300.0 Rack travel in mm : 9.4...9.6 Del.quantity cm3/: 1.3...1.7

100 s: (1.1...1.9) cm3 : 0.2Spread

100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

2nd speed rpm : 500 : 2.30...2.80 travel mm

rpm : 750 3rd speed

: 4.10...4.30 rpm : 1500 travel am

4th speed

: 8.50...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1500 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed Aneroid pressure h: 700

: 71.5...72.5 Del.quantity 1000 : (69.5...74.5)

3.00 cm3 Spread : (5.00) 1000

RATED SPEED

1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 11.40 Speed rpm: 1440...1450 2nd rack travel in: 4.00 Speed rpm : 1570...1600 4th rack travel in: 1750 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 26...34 Testing: : 100 Speed rom Minimum rack trave: 11.00 rpm : 300 Speed Rack travel in mm : 9.40...9.60 Rack travel in mm: 2.00 rpm : 610...670 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 12.40...12.50 2nd speed rpm : 600 Rack travel in m: 13.80...13.90 3rd speed rpm : 900 Rack travel in m: 13.30...13.50 4th speed rpm : 1100 Rack travel in m: 12.80...13.10 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 700 Rack travel mm : 13.80...13.90 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 12.60...12.70 2nd pressure hPa : 300 Rack travel in m: 13.50...13.60 3rd pressure hPa : 240 Rack travel in m: 12.80...13.00 START CUT-OUT

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Remarks:

J15

Speed

Note remarks

Test sheet Edition : MB 4,0 d : 02.05.89 : 24.7.87 Replaces Test oil : ISO-4113

Combination no. : 9 400 085 289

Injection pump

Pump designation : PES4A90D410RS2729 EP type number : 9 400 084 009

Governor

Governor design. : RQV300...1300AB1228L

: 9 420 080 231 Governer no.

Customer-spec. information

: DAIMLER-BENZ BRASIL Customer

Engine : 0M364A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 13.70...13.80

Del.quantity cm3/: 8.4...8.5

100 s: (8.2...8.7)

Spread cm3 : 0.3

100 s: (0.5)

rpm : 300.0 2nd speed Rack travel in mm : 8.9...9.1 Del.quantity cm3/: 0.7...1.1 100 s: (0.5...1.3)

Spread cm3 : 0.2100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1380 1st speed

: 8.50...8.60 travel mm

rpm : 300 2nd speed

: 0.90...1.30 travel mm

rpm : 500 3rd speed

: 2.20...2.60 travel mm

rpm : 900 4th speed

travel mm : 4.90...5.10

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1 rpm : 1380

Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

: 84.5...85<u>.</u>5 Del.quantity 1000 : (82.5...87.5)

: 3.00 Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testina: 1st rack travel in: 12.70 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1475...1505 Speed 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 18...26 Testina: Speed : 100 rpm Minimum rack trave: 10.20 rpm : 300 Rack travel in mm : 8.60...8.80 CONSTANT REGULATION rpm : 540...680 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 13.70...13.80 rpm : 500 2nd speed Rack travel in m: 15.20...15.30 3rd speed rpm : 850 Rack travel in m: 14.80...15.00 4th speed rpm : 1000 Rack travel in m: 14.30...14.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed Pressure Rack travel mm : 15.20...15.30 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 13.50...13.60 2nd pressure hPa : 570
Rack travel in m: 14.80...14.90
3rd pressure hPa : 500
Rack travel in m: 13.90...14.10

Aneroid pressure h: 700 Speed rpm : 500 Del.quantity cm3/: 81.0...83.0 1000 s: (78.5...85.5) Aneroid pressure h: 700 Speed : 850 rpm Del.quantity cm3/: 88.0...90.0 1000 s: (84.5...92.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 64.0...66.0 1000 s: (61.5...68.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.70 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 16.00...17.00 Remarks: :

1st version

Speed

START CUT-OUT

1/min: 240 (260)

FUEL DELIVERY CHARACTERISTICS

Note remarks

: DEZ 6,1 a : 02.05.89 Test sheet Edition Replaces : 21.5.87 Test oil : ISO-4113

Combination no. : 9 400 085 293

Injection pump

Pump designation : PES6A80D410RS2527 EP type number : 9 400 093 005

Governor

Governor design. : RQV300...1400AB1234L

Governer no. : 9 420 080 241

Customer-spec. information

: DEUTZ ARGENTINA Customer

: F 6 L 913 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 6.9...7.0

100 s: (6.7...7.1)

cm3 : 0.2 Spread

100 s: (0.4)

2nd speed rpm : 300.0 Rack travel in mm : 8.4...8.6 Del.quantity cm3/: 0.8...1.1

100 s: (0.7...1.3)

Spread cm3 : 0.2100 s: (0.3)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed

: 8.40...8.60 travel mm

rpm : 300 2nd speed

: 0.70...1.20 travel mm

3rd speed : 550 rpm

travel mm : 2.70...3.00

4th speed : 775 rpm travel mm

: 4.10...4.60 : 950

5th speed rpm

: 5.20...5.50 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1420 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 69.0...70.0 Del.quantity

1000 : (67.5...71.5)

: 2.50 cm3 Spread 1000 : (4.00)

RATED SPEED

1st version Control lever position degrees: 55...63

Testing:

1st rack travel in: 11.00 rpm : 1440...1450 Speed

2nd rack travel in: 4.00

Speed rpm : 1570...1600 4th rack travel in: 1700

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 6...14

Testina:

Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00

rpm : 540...600 Speed

CONSTANT REGULATION

rpm : 400...500 Speed

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 12.00...12.10 2nd speed rpm : 500 Rack travel in m: 12.90...13.00

3rd speed rpm : 1000 Rack travel in m: 12.70...12.90

4th speed rpm : 1200

Rack travel in m: 12.20...12.50

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 500 Speed rpm

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 11.00

rpm : 1440...1450 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19.00...21.00

Remarks:

J19

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB 4,0 a 8 : 02.05.89 Edition : 1.9.88 Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 295

Injection pump

Pump designation : PES4A90D410RS2666 EP type number : 0 410 894 029

Governor

Governor design. : RQV300...1400AB1065-

: 0 420 212 169 Governer no.

Customer—spec. information

: DAIMLER-BENZ Customer

Engine : 0M364

: 66.0 1st version kW : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.25...2.35 Prestroke mm

: (2.20...2.40)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 6.3...6.4

100 s: (6.1...6.6)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 300.0 Rack travel in mm : 8.6...8.8 Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4)

cm3 : 0.2Spread 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 0.80...1.30 travel mm

2nd speed rpm : 500

: 2.30...2.80 travel mm

: 750 3rd speed rpm travel mm

: 4.10...4.30

4th speed : 1500 rpm

travel mm : 8.50...8.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 63.0...64.0 Del.quantity 1000 : (61.0...66.0)

: 3.00 Spread cm3

: (5.00) 1000

RATED SPEED

1st version Control lever

position degrees: 58...66

Testina:

1st rack travel in: 9.90

Speed rpm : 1450...1460 2nd rack travel in: 4.00 Speed rpm : 1560...1590 4th rack travel in: 1700 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever position degrees: 20...28

Testing:

Speed rpm : 100
Minimum rack trave: 10.20
Speed rpm : 300
Rack travel in mm : 8.60...8.80

CONSTANT REGULATION Speed rpm : 540...680

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 630
Rack travel in m: 12.20...12.30

3rd speed rpm : 900

Rack travel in m: 11.60...11.80

Nack travet III III. 11.00....

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 630 Del.quantity cm3/ : 55.5...58.5 1000 s: (53.0...61.0) Speed rpm : 900

Speed rpm : 900 Del.quantity cm3/ : 54.5...57.5 1000 s: (52.0...60.0)

BREAKAWAY

START CUT-OUT

1st version 1mm rack travel less than

full load rack tr: 9.90 Speed rpm : 1450...1460

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

J21

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 17.00...17.40

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Note remarks : MWM 5,9 j : 02.05.89 Test sheet Edition Phasing : 0-60-120-180-240-300 Replaces : ISO-4113 Tolerance + - 0 Test oil : 0.50 (0.75) Combination no. : 9 400 085 302 Time to cyl. no. : 1 Injection pump BEGINNING OF DELIVERY DIFFERENCE Pump designation : PES6A90D32ORS2767 EP type number : 9 400 084 017 betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Governor Difference ° CS : 3.00...4.00 Governor design. : RSV300...1400A0B2207 -2R : 9 420 083 238 Governer no. BASIC SETTING rpm: 1400 Customer-spec. information 1st speed Customer Rack travel in mm : 14.30...14.40 Engine : TBD 229 EC6 Del.quantity cm3/: 12.0...12.1 : 185.0 1st version kW 100 s: (11.8...12.3) : 2800 Rated speed TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.3...1.7 100 s: (1.1...1.9) Overflow valve : 1 417 413 046 cm3 : 0.2Inlet press., bar: 1.50 Spread 100 s: (0.4) Test nozzle holder : 0 681 343 009 assembly GUIDE SLEEVE POSITION Control-lever position Opening | Degree: -3 rpm : 800 pressure, bar : 172...175 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

: 120.0...121.0 Del.quantity 1000 : (118.0...123.0)

: 3.00 Spread cm31000 : (5.00)

RATED SPEED

1st version

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm : (2.45...2.65)

Control Lever position degrees: 62...70 Testing: 1st rack travel in: 13.30 Speed rpm : 1440...1450 2nd rack travel in: 4.00 rpm : 1540...1570 Speed 4th rack travel in: 1700 rom : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.5 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00 rpm : 450...510 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 14.30...14.40 2nd speed rpm : 500
Rack travel in m: 14.30...14.50
5th speed rpm : 350
Rack travel in m: 15.50...16.10 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 106.5...108.5 1000 s: (104.0...111.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.30 rpm : 1440...1450 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.90...8.10 Del.quantity cm3/ : 13.0...17.0 1000 s: (11.0...19.0)

cm3 : 2.50Spread

1000 s: (4.50)

Remarks:

APPLICATION

Navy

J23

Note remarks

: FOR 6,6 f 2 Test sheet Edition : 02.05.89

Replaces

: ISO-4113 Test oil

: 9 400 085 303 Combination no.

Injection pump

: PES6A95D410RS2714 Pump designation EP type number : 9 400 084 001

Governor

Governor design. : RQV375...1300AB1208-

Governer no. : 9 420 080 263

Customer-spec. information Customer : FORD (FTO)

: 6,6 TC Engine

: 127.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina .

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25

: (3.10...3.30)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.90

& maximum rack tra: 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.10...12.20

Del.guantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3) cm3 : 0.3 100 s: (0.5) Spread

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1345 1st speed

: 8.50...8.60 rpm : 350 travel mm

2nd speed

: 1.30...1.60 travel mm

rpm : 700 3rd speed

: 4.10...4.50 travel mm

rpm : 1100 4th speed

: 6.30...6.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1345 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 700 : 86.0...88.0 Del.quantity 1000 : (84.0...90.0) cm3 : 3.50 Spread : (6.00) 1000 RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 11.10 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 12...20 Testing: Speed rpm : 100 Minimum rack trave: 9.50 rpm : 375 Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 rpm : 650...710 Speed CONSTANT REGULATION rpm : 460...530 Speed TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 12.10...12.20 2nd speed rpm : 850 Rack travel in m: 12.50...12.60 4th speed rpm : 1000 Rack travel in m: 12.30...12.40 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 700 Pressure : 12.50...12.60 Rack travel mm Measurement 1/min: 500 Speed

1st pressure hPa : -

J25

Rack travel in m: 11.10...11.20 2nd pressure hPa : 510 Rack travel in m: 12.20...12.30 3rd pressure hPa : 420 Rack travel in m: 11.40...11.60 START CUT-OUT 1/min : 290 (310) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 850 Del.quantity cm3/: 85.0...88.0 1000 s: (82.5...90.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 61.0...63.0 1000 s: (59.0...65.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.10 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 115.0...129.0 1000 s: (-) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 375 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

: FOR 6,6 m Test sheet Edition : 02.05.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 304

Injection pump

Pump designation : PES6A95D412RS2709 : 9 400 083 099 EP type number

Governor

Governor design. : RQV350...1400AB1202-

: 9 420 080 262 Governer no.

Customer—spec. information

: FORD (FTO) Customer

: 6.6 L NA Engine

: 108.0 1st version kW : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.15...3.25 : (3.10...3.30) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.4)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1420 travel mm : 8.50...8.60

rpm : 350 2nd speed

travel mm : 1.30...1.60 3rd speed : 700

rpm travel mm : 4.20...4.60

1100 4th speed rpm

: 6.10...6.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1420 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 74.0...76.0 1000 : (72.0...78.0)

Smo : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 59...65

Testing:

1st rack travel in: 9.40

Speed rpm: 1450...1460 2nd rack travel in: 4.00

rpm : 1540...1570 Speed

4th rack travel in: 1720

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...18

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00 rpm : 560...620 Speed

CONSTANT REGULATION

Speed rpm : 460...530

START CUT-OUT

1/min: 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/: 63.0...66.0 1000 s: (60.5...68.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

J27

Del.quantity cm3/: 112.0...126.0

1000 s: (-)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 8.0...12.0 1000 s: (5.5...14.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Note remarks : MB 5,7 v 22 : 02.05.89 Test sheet Edition Phasing : 0-60-120-180-240-300 Replaces Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 9 400 085 306 BASIC SETTING Injection pump 1st speed rpm: 1400 Pump designation : PES6A90D410RS2596 EP type number Rack travel in mm : 12.40...12.50 : 0 410 896 073 Governor : RQV300...1400AB1066-Del.quantity cm3/: 7.7...7.8 Governor design. : 9 420 214 267 100 s: (7.5...8.0) Governer no. cm3 : 0.3Customer-spec. information Spread : DAIMLER-BENZ BRASIL Customer 100 s: (0.4) : 0M352A Engine rpm : 300.02nd speed Rack travel in mm: 8.9...9.1 : 121.0 1st version kW Del.quantity cm3/: 0.9...1.5 : 2800 Rated speed 100 s: (0.7...1.7) TEST BENCH REQUIREMENTS cm3 : 0.2Spread 100 s: (0.4) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 0.80...1.30 Inlet press., bar: 1.50 travel mm rpm : 500 : 2.30...2.80 rpm : 750 2nd speed Test nozzle holder travel mm : 0 681 343 009 assembly 3rd speed rpm : 4.10...4.30 travel mm : 1500 **Opening** 4th speed rom : 172...175 : 8.50...8.60 pressure, bar travel mm GUIDE SLEEVE POSITION Test Lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1500 Outside diameter Speed Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1400 Speed Aneroid pressure h: 700

: (1.95...2.15)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 11.50

rpm : 1440...1450 Speed

2nd rack travel in: 4.00

rpm : 1570...1610 Speed

4th rack travel in: 1750

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 67...75

Testina:

Speed rpm : 100 Minimum rack trave: 10.30 Speed rpm: 300

Rack travel in mm : 8.90...9.10

CONSTANT REGULATION

rpm : 560...680 Speed

TORQUE CONTROL

Dimension a mm : 0.80

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 12.40...12.50 od speed rpm : 500 Rack travel in m: 13.20...13.30

2nd speed

4th speed rpm : 1000

Rack travel in m: 12.70...12.90

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 700 Pressure

: 13.20...13.30 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 12.30...12.40

2nd pressure hPa : 465

Rack travel in m: 12.90...13.00

3rd pressure hPa : 375

Rack travel in m: 12.50...12.70

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 500 Speed

Del.quantity cm3/: 65.5...67.5

1000 s: (64.5...68.5)

Aneroid pressure h: 700 Speed : 1000 rpm

Del.quantity cm3/: 74.5...78.5 1000 s: (73.0...80.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 56.5...58.5 1000 s: (54.5...60.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 71.0...81.0 1000 s: (68.0...84.0) Rack travel in mm : 15.80...16.20

LOW IDLE

Speed rpm : 300

Rack travel in mm : 8.90...9.10 Del.quantity cm3/: 9.0...15.0 1000 s: (7.0...17.0) Spread cm3 : 2.00

1000 s: (4.00)

Remarks:

Set shutoff stop to contact at

3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 10,0 e 2 : 02.05.89 Test sheet Edition : 1.9.88 Replaces : ISO-4113 Test oil Combination no. : 9 400 087 308 Injection pump Pump designation: PE5P110A720RS479 : 9 400 087 040 EP type number Governor Governor design. : RQ300/1050PA718-1 Governer no. : 9 420 080 187 Customer-spec. information : DAIMLER-BENZ BRASIL Customer : OM355-5 A Engine 1st version kW : 170.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test Lines : 1 680 750 004 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Phasina : 0-72-144-216-288 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1050Rack travel in mm : 12.20...12.30 Del.quantity cm3/: 16.1...16.3 100 s: (15.8...16.6) cm3 : 0.4Spread 100 s: (0.7) rpm : 300.02nd speed Rack travel in mm: 6.4...6.6 Del.guantity cm3/: 1.1...1.6 100 s: (-) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Aneroid pressure h: 700 : 161.0...163.0 Del.quantity 1000 : (158.0...166.0) : 4.00 Spread cm31000 : (7.50) RATED SPEED 1st version Setting point: Speed rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 11.20 Speed rpm : 1095...1110 2nd rack travel in: 4.00 : 1150...1180 Speed rom

Firing order

: 1-2-4-5-3

KOS

per values

Prestroke mm

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

3.35...3.45

: (3.30...3.50)

4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.5 Testina: Speed : 100 rpm Minimum rack trave: 8.50 : 300 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 : 375...415 Speed rom TORQUE CONTROL Dimension a mm : 0.35 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.20...12.30 rpm : 600 2nd speed Rack travel in m: 13.10...13.20 3rd speed rpm : 900 Rack travel in m: 12.70...13.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 700 Pressure : 13.10...13.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.30...10.40 2nd pressure hPa : 400 Rack travel in m: 12.40...12.50 3rd pressure hPa : 250 Rack travel in m: 11.10...11.30 START CUT-OUT 1/min: 230 (270) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/ : 177.0...181.0 1000 s: (174.0...184.0)

Del.quantity cm3/: 174.0...178.0 1000 s: (171.0...181.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 112.5...115.5 1000 s: (110.0...118.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 1095...1110

· p...

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 150.0...170.0

1000 s: (-)

Rack travel in mm : 13.30...14.30

Remarks:

K03

Speed

Aneroid pressure h: 700

man

: 900

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.60...2.70 : (2.55...2.75) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks : VOL 10,0 s4 Test sheet : 02.05.89 Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 : 9 400 087 346 Combination no. Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE6P120A320RS3186 Time to cyl. no. : 1 : 0 411 826 756 EP type number BASIC SETTING Governor : RQV250...1025PA657-1 Governor design. 1st speed rpm: 700 Governer no. : 0 421 813 592 Rack travel in mm : 11.40...11.50 Customer-spec. information Customer : VOLVO Del.quantity cm3/: 19.7...19.9 100 s: (19.4...20.2) Engine : TD 102 F cm3 : 0.51st version kW : 220.0 Spread Rated speed : 2050 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 250.0 Rack travel in mm : 3.9...4.1 Del.quantity cm3/ : 1.7...2.2 Test oil inlet temp. °C : 38...42 100 s: (1.4...2.4) Overflow valve Spread cm3 : 0.5: 1 417 413 025 100 s: (0.7) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 250 1st speed : 1.10...1.30 Openina | travel mm : 207...210 rpm : 500 pressure, bar 2nd speed 4.10...4.90 travel mm 700 Orifice plate 3rd speed rpm : 6.30...6.70 diameter mm : 0,8 travel mm rpm : 900 4th speed travel mm : 6.30...6.70 rpm : 1025 Test lines : 1 680 750 067 5th speed : 7.30...7.80 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x1.50x1000 x Length mm Control-lever position Degree: -1 rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

K04

Aneroid pressure h: 1000 : 197.0...199.0 Del.quantity 1000 : (194.0...202.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 10.40 rpm : 1055...1065 Speed 2nd rack travel in: 4.00 rpm : 1110...1140 Speed 4th rack travel in: 1250 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 4...12 Testing: Speed rpm Minimum rack trave: 5.40 rpm : 250 Speed Rack travel in mm : 3.90...4.10 CONSTANT REGULATION rpm : 250...350 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 1000 Speed mch. Pressure Rack travel mm : 11.40...11.50 Measurement Speed 1/min: 500

1st pressure hPa : -Rack travel in m: 8.80...9.00 2nd pressure hPa : 80 Rack travel in m: 9.00...9.10 3rd pressure hPa : 400 Rack travel in m: 10.90...11.10 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: rpm : 700 Speed

Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40 rpm : 1055...1065 Speed

LOW IDLE

Speed rpm : 250 Rack travel in mm : 3.90...4.10 Del.quantity cm3/: 17.0...22.0 1000 s: (14.5...24.5) cm3 : 5.00 Spread

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm. Permissible alteration from 2.20...2.90

K05

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.60...3.70 : (3.55...3.75) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : VOL 12,2 a2 : 02.05.89 Test sheet Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 9 400 087 357 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation: PE6P120A320RS3178 EP type number : 0 411 826 752 BASIC SETTING Governor : RQV250...1025PA657-1 Governor design. 1st speed rpm: 700 Governer no. : 0 421 813 567 Rack travel in mm : 14.00...14.10 Customer-spec. information Del.quantity cm3/: 25.2...25.4 Customer : VOLVO 100 s: (24.9...25.7) Engine : TD 122 FS 1st version kW : 287.0 Spread cm3 : 0.5: 2050 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm: 4.8...5.1 Test oil Del.quantity cm3/: 1.8...2.3 inlet temp. °C : 38...42 100 s: (1.5...2.5) cm3 : 0.5 Overflow valve Spread : 1 417 413 025 100 s: (0.7) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.10...1.30 Opening travel mm rpm : 500 pressure, bar : 207...210 2nd speed 4.10...4.90 travel mm : 700 Orifice plate 3rd speed rom 6.30...6.70 diameter mm : 0,8 travel mm 900 4th speed rpm : 6.30...6.70 travel mm Test Lines : 1 680 750 067 1025 5th speed rpm : 7.30...7.80 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X1.50X1000 Control-Lever position x Length mm Degree: -1 rpm : 1090 (A) Injection pump setting values Speed Rack travel in mm : 15.20...17.80 Insp. values in parentheses Set equal delivery quant.

FULL LOAD DELIV. AT FULL LOAD STOP

rpm : 700

Aneroid pressure h: 1200

1st version

Speed

per values ____

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

: 252.0...254.0 Del.quantity 1000 : (249.0...257.0) : 5.00 Spread cm3: (9.00) 1000 RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 13.00 rpm : 1055...1065 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 4th rack travel in: 1250 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 6...14 Testina: : 100 Speed rpm Minimum rack trave: 6.40 rpm : 250 Rack travel in mm : 4.80...5.10 CONSTANT REGULATION rpm : 250...400 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1200 Pressure : 14.00...14.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.00...10.20 2nd pressure hPa : 100 Rack travel in m: 10.30...10.40 3rd pressure hPa : 810 Rack travel in m: 13.60...13.80 FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rom : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del.quantity cm3/ : 18.0...23.0
1000 s: (15.5...25.5)

Spread cm3 : 5.00 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90

K07

Speed

1st version

Aneroid pressure h: -

rpm : 700

1000 s: (160.0...168.0)

Del.quantity cm3/: 163.0...165.0

: 1- 2- 7- 3- 4- 5-6-8 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : SCA 14,2 j Edition : 02.05.89 : 0-45-90-135-180-225-Phasing 270-315 Replaces : 0.50 (0.75) Tolerance + - 0 Test oil : ISO-4113 : 9 400 087 372 Combination no. Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE8P120A920/4LS7002T : 9 400 087 054 EP type number 1st speed rpm: 700 Governor Governor design. : RQV200...1000PA547-2 Rack travel in mm : 13.20...13.30 : 9 420 080 238 Governer no. Del.quantity cm3/: 18.7...18.9 Customer-spec. information : SAAB-SCANIA 100 s: (18.4...19.2) Customer Engine : DSC 14 07 Spread cm3 : 0.6TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil 2nd speed rpm : 225.0 Rack travel in mm: 4.9...5.1 inlet temp. °C : 38...42 Del.quantity cm3/: 1.0...1.4 100 s: (-) Overflow valve : 1 417 413 025 cm3 : 0.3Spread 100 s: (0.6) Inlet press., bar: 1.50 (B) Setting of injection pump Test nozzle holder with governor : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 1040 Opening | 1st speed : 207...210 : 8.40...8.50 pressure, bar travel mm rpm : 225 2nd speed : 1.00...1.60 Orifice plate travel mm rpm : 350 diameter mm : 0,8 3rd speed : 2.50...2.90 travel mm rpm : 650 4th speed Test Lines : 1 680 750 015 : 4.60...4.90 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness Control-lever position x Length mm : 6.00X1.50X600 Degree: -1 rpm : 1000 Speed (A) Injection pump setting values Rack travel in mm : 15.20...17.80 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values 1st version BEGINNING OF DELIVERY Speed rpm : 700 Aneroid pressure h: 600 Test pressure, bar: 25...27 : -187.0...189.0 Del.quantity 1000 : (184.0...192.0) : 5.00...5.10 Prestroke mm : 6.00 : (4.95...5.15) cm3 Spread 1000 : (9.00) Rack travel in mm : 9.00...12.00

K08

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 12.20

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1150...1180 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

rpm : 100 Speed

Minimum rack trave: 5.90 Speed rpm: 225

Rack travel in mm : 4.40...4.60

Rack travel in mm : 2.00 Speed rpm : 310...370

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed rpm hPa : 600 Pressure

Rack travel mm : 13.20...13.30

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 11.30...11.40
2nd pressure hPa : 355
Rack travel in m: 12.50...12.60
3rd pressure hPa : 260

Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600

Speed rpm : 1000 Del.quantity cm3/ : 183.0...191.0 1000 s: (181.0...193.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 137.0...141.0 1000 s: (135.0...143.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 240.0...290.0 1000 s: (-) Rack travel in mm : 20.00...21.00

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

: 2.80...2.90 : (2.75...2.95) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm: 10.50 Note remarks : 1-5- 3- 6- 2- 4 Firing order Test sheet : CUM 8,3 b 7 : 20.12.88 Edition Replaces : ISO-4113 Phasing : 0-60-120-180-240-300 Test oil : 9 400 230 103 Combination no. Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6A100D410RS2691-2 EP type number : 9 410 230 028 BASIC SETTING Governor Governor design. : RQV350...1100AB1227R rom: 1100 1st speed : 9 420 231 015 Governer no. Rack travel in mm : 12.80...12.90 Customer-spec. information Customer : C.D.C. Del.quantity cm3/: 13.0...13.2 100 s: (12.8...13.4) Engine : 6 CT 8.3 : 156.6 cm3 : 0.31st version kW Spread : 2200 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.8...2.2 Test oil inlet temp. °C : 38...42 100 s: (1.5...2.4) cm3 : 0.3Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 assembly GUIDE SLEEVE TRAVEL rpm : 1100 1st speed : 7.70...7.70 Opening. travel mm : 207...210 rpm : 1150 pressure, bar 2nd speed : 8.00...8.60 travel mm 3rd speed rpm : 1290 Orifice plate diameter mm : 0,6 : 9.50...10.10 travel mm 4th speed : 350 rpm travel mm 1.20...1.60 Test lines : 1 680 750 014 5th speed rpm : 600 : 3.90...4.50 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x2.00x600 x Length mm Control-lever position Degree: -1 rpm : 1290 (A) Injection pump setting values Speed Rack travel in mm : 6.70...9.30 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version Test pressure, bar: 27...29 rom : 1100 Speed Aneroid pressure h: 900

Del.quantity : 130.5...132.5 1000 : (128.5...134.5) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testing: 1st rack travel in: 11.80 rpm : 1150...1160 Speed 2nd rack travel in: 4.00 rpm : 1265...1295 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 9...17 Testina: Speed rpm : 250 Minimum rack trave: 8.00 Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00 rpm : 420...480 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 900 Pressure : 12.80...12.90 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.10...10.30 2nd pressure hPa : 535 Rack travel in m: 12.10...12.20 3rd pressure hPa : 390

Rack travel in m: 10.70...11.10 START CUT-OUT 1/min: 260 (280) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 79.0...83.0 1000 s: (77.0...85.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80 rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 165.0...185.0 1000 s: (160.0...190.0) Rack travel in mm: 15.30...15.70

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.60...5.80

Del.quantity cm3/: 18.0...22.0

1000 s: (15.5...24.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: CDC # 3912645

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark is at 7° after start of delivery.

K11

Note remarks

Test sheet : CUM 8,3 a19 Edition : 20.12.88

Replaces

Test oil : ISO-4113

: 9 400 230 109 Combination no.

Injection pump

Pump designation : PES6A100D32D/3RS2691

: 9 410 230 030 EP type number

Governor

: RSV450...1100A2C2190 Governor design.

-21R

: 9 420 234 164 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CT830

1st version kW : 117.1 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 450.0 2nd speed Rack travel in mm: 5.7...5.9 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100 Speed

: 89.0...91.0 Del.quantity

1000 : (87.0...93.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.20 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 29...37 Setting point w/out bumper spring : 450 riom Rack travel in mm: 5.3 Testing: : 100 Speed rom Minimum rack trave: 19.00 rpm : 450 Speed Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00 : 525...585 Speed rom

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 10.20...10.30 2nd speed rpm : 750 Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version : 750 Speed rpm Del.quantity cm3/: 90.5...94.5 1000 s: (88.5...96.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm Speed rpm : 450 Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: C.D.C. # 3911541

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

K13

Note remarks

Test sheet : CUM 8,3 a18 : 20.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 110

Injection pump

Pump designation : PES6A100b320/3RS2691

EP type number

: 9 410 230 030

Governor

Governor design. : RSV450...1100A0C2190

-22R

: 9 420 234 173 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CT830 Engine

1st version kW : 150.6 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11,8...12.0

100 s: (11.6...12.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 450.0 2nd speed

Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity

118.5...120.5 1000 : (116.5...122.5) cm3 : 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm: 1195...1225 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 22...30

Setting point w/out bumper spring

rpm : 450Rack travel in mm: 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 450 Speed

Rack travel in mm : 5.70...5.90

Rack travel in mm : 2.00

: 500...560 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.10...12.20

2nd speed rpm : 750

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 133.0...137.0

1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed **Lbus**

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 450 Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

: C.D.C. # 3911542

Adjustment without torque-control spring retainer with 1 mm less

control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a17 : 20.12.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 230 111 Injection pump Pump designation : PES6A1000320/3RS2691 EP type number : 9 410 230 030 Governor : RSV450...1100A0c2190 Governor design. -23R : 9 420 234 174 Governer no. Customer-spec. information Customer : C.D.C. : 6CT830 Engine 1st version kW : 134.2 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0.6 Test Lines : 1 680 750 014 Outside diameter

: 6.00x2.00x600

: 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1100 1st speed Rack travel in mm : 11.20...11.30 Del.guantity cm3/: 10.1...10.3 100 s: (9.9...10.5) Spread cm3 : 0.3100 s: (0.6) rpm : 450.0 2nd speed Rack travel in mm: 5.7...5.9 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed : 101.0...103.0 Del.quantity 1000 : (99.0...105.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 49...57

Test pressure, bar: 27...29

x Wall thickness

per values

BEGINNING OF DELIVERY

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

x Length mm

Testina:

1st rack travel in: 10.20

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm: 1210...1240 3rd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 31...39

Setting point w/out bumper spring

rpm : 450° Rack travel in mm: 5.3

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 450

Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00

: 535...595 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 110.5...114.5

1000 s: (108.5...116.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450

K17

Remarks:

: C.D.C. # 3911545

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

Note remarks

Test sheet : DEE 10,1 a9 Edition : 07.04.89 : 5.3.87 Replaces

Test oil : ISO-4113

Combination no. : 9 400 231 039

Injection pump

Pump designation : PES6P110A720RS370 : 0 412 016 052 EP type number

Governor

Governor design. : RSV450...1050P0A465

: 9 420 234 180 Governer no.

Customer-spec. information

: JOHN DEERE Customer

Engine : 6619A

: 201.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X3.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no. : 1

BASIC SETTING

rpm : 10501st speed

Rack travel in mm : 12.40...12.50

Del.guantity cm3/: 17.4...17.6

100 s: (17.1...17.9)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 450.02nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.9...2.5 100 s: (1.7...2.7)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050Speed Aneroid pressure h: 900

: 174.0...176.0 1000 : (171.0...179.0) Del.quantity

 Σ mo : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 47...55

Testing:

1st rack travel in: 11.40

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1220...1250 4th rack travel in: 1250

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 25...33 Setting point w/out bumper spring

rpm : 450° Rack travel in mm: 5.6

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 450

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

Speed : 600...660 rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.40...12.50

2nd speed rpm : 650

Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 900 Pressure

: 13.60...13.80 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 10.50...10.70 2nd pressure hPa : 280

Rack travel in m: 11.70...11.80

3rd pressure hPa : 480

Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 650 Del.quantity cm3/: 198.5...201.5

1000 s: (195.0...205.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: -1000 s: (123.0...133.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...210.0 1000 s: (165.0...215.0) Rack travel in mm: 20.00...21.00

HIGH IDLE

1st version

: 1170 Speed rom

Rack travel in mm : 7.40...7.60

LOW IDLE

Speed rpm : 450

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 19.0...25.0 1000 s: (17.0...27.0)

cm3 : 4.50 Spread 1000 s: (7.50)

Remarks:

: JOHN DEERE # RE29146

Starting/full-load transition speed from holding magnet = 400 1/min.

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of delivery.

Note inst. in remarks column

: IHC 3,9 K : 10.03.89 Test sheet Edition : 08.77 replaces

Calibrating oil : ISO 4113

: VA 4/100H1200 CR187 Injection pump

Type number : 0 460 304 232

Customer-specific information

Customer : IHC

Engine : D 239

TEST BENCH REQUIREMENTS

Inlet press., bar: 0,2

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening |

bar: 172...175 pressure

Perforated-plate

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm : 0,5

(from BDC): $\pm 0.02(0.04)$

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900 Speed

Setting value mm: 3,6...4,6

Supply-pump pressure:

1/min: 900

Setting value bar: 4,7...5,2

Full-load del. w/out charge press.:

 $1/\min : 800$

Del.quantity cm3/ 1000H.: 70,0...71,0 Dispersion cm3/: 2,5

1000H.: -

Low-idle speed regulation:

1/min: 350 Speed

Del.quantity cm3/

1000H.: 12,0...18,0 cm3/: 3,0

Dispersion

1000H.: -

Full-load speed regulation:

1/min: 1300 Speed

Del.quantity cm3/

1000H: 24,0...32,0

Start:

1/min: 100 Speed Del.quantity

cm3/1000H.: 85.0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 1,3...2,3 mm: (1,0...2,6) TD travel

2nd speed 1/min: 900

mm: 3,6...4,6 mm: (3,3...4,9) TD travel

1/min: 1000 3rd speed

TD travel

mm: 4,7...5,4 mm: (4,4...5,7)

Supply-pump pressure characteristic:

1st speed 1/min: 200

Supply-pump

bar: 1,4...1,9 bar: (1,2...2,1) 1/min: 900 pressure

2nd speed

Supply-pump

pressure

bar: 4,7...5,2 bar: (4,5...5,4)

1/min: 1200 3rd speed

Supply-pump

bar: 5,7...6,2 bar: (5,5...6,4) pressure

Overflow quantity at overflow valve:

1/min: 500 1st speed : 55...98 Oveflow cm3/10s: (40...113) quantity 2nd speed 1/min: 1200 Everflow : 55...98 quantity cm3/10s: (40...113) 2nd speed Overflow Delivery-quant. and breakaway char.: 1st speed 1/min: 1330 1000H.: -2nd speed 1/min: 1300 Del.quantity cm3/: 24,0...32,0 1000H.: (23,5...32,5) 3rd speed 1/min: 1180
Del.quantity cm3/: 74,0...77,0
1000H.: (73,5...77,5) 1/min: 800 4th speed Del.quantity cm3/: 70,0...71,0 1000H.: (69,5...71,5) 5th speed 1/min: 500 Del.quantity cm3/: 68,0...71,0 1000H.: (67,5...71,5) Zero delivery (stop): Mech. shutoff: 1/min: 1200 Speed Del.quantity cm3/: -1000H.: -Idle delivery: 1st speed 1/min: 350 Del.quantity cm3/: 12,0..18,0 1000H.: (10,0..20,0) 2nd speed 1/min: 420 Del.quantity cm3/: -1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 250-1/min: 350 2nd speed Mounting and assembly dimensions: Angles: : 24+-40 Alpha : 40+-80 Beta 30 -80 Gamma : 60 +80 Delta

Governor-spring washer thickness Dimension V mm : 24,65

Remarks:

K21

Initial setting dimensions:

Dimension IV mm : 1,8

Note inst. in remarks column

: IHC 3,9 K11 : 10.03.89 : 08.77 Test sheet Edition

replaces Calibrating oil : ISO 4113

: VA 4/100H1200 CR187 Injection pump

: 0 460 304 233 Type number

Customer-specific information

Customer : IHC

Engine : D 239

TEST BENCH REQUIREMENTS

Inlet press., bar: 0,2

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening .

bar: 172...175 pressure

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2

x Length mm: 840

Start of delivery

Prestroke mm: 0,5 (from BDC): +0,02(0,04)

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900

Setting value mm: 3,6...4,6

Supply-pump pressure:

1/min: 900

Setting value bar: 4,7...5,2

Full-load del. w/out charge press.:

 $1/\min : 800$ Speed

Del.quantity cm3/

1000H.: 70,0...71,0 cm3/: 2,5

Dispersion

1000H.: -

Low-idle speed regulation:

Speed 1/min: 350

Del.quantity cm3/ 1000H.: 12.0...18,0 Dispersion cm3/: 3,0

1000H.:

Full-load speed regulation:

1/min: 1300

Del.quantity cm3/

1000H: 24,0...32,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 85,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500

mm: 1,3...2,3 mm: (1,0...2,6) TD travel

1/min: 900 2nd speed

TD travel

mm: 3,6...4,6 mm: (3,3...4,9) 1/min: 1000

3rd speed TD travel

mm: 4,7...5,4 mm: (4,4...5,7)

Supply-pump pressure characteristic:

1/min: 200 1st speed

Supply-pump

pressure

bar: 1,4...1,9 bar: (1,2...2,1)

1/min: 900 2nd speed

Supply-pump

pressure

bar: 4,7...5,2 bar: (4,5...5,4) 1/min: 1200

3rd speed

Supply-pump pressure

bar: 5,7...6,2 bar: (5,5...6,4)

Overflow quantity at overflow valve: 1/min: 500 : 55...98 1st speed Oveflow quantity cm3/10s: (40...113) 1/min: 1200 2nd speed Overflow : 55...98 quantity cm3/10s: (40...113) Delivery quant. and breakaway char.: 1st speed 1/min: 1330 1000H.: -2nd speed 1/min: 1300 Del.quantity cm3/: 24,0...32,0 1000H.: (23,5...32,5) 3rd speed 1/min: 1180
Del.quantity cm3/: 74,0...77,0
1000H.: (73,5...77,5) 4th speed 1/min: 800 Del.quantity cm3/: 70,0...71,0 1000H.: (69,5...71,5) 5th speed 1/min: 500 Del.quantity cm3/: 68,0...71,0 1000H.: (67,5...71,5) Zero delivery (stop): Mech. shutoff: 1/min: 1200 Speed Del.quantity cm3/: -1000H.: -Idle delivery: 1st speed 1/min: 350 Del.quantity cm3/: 12,0..18,0 1000H.: (10,0..20,0) 2nd speed 1/min: 420 Del.quantity cm3/: - 1000H.: -Automatic starting fuel delivery: 1/min: 250-1st speed 2nd speed 1/min: 350 Mounting and assembly dimensions: Angles: : 24+-40 Alpha : 40+-80 Beta

: 30 -80

: 60 +89

Initial setting dimensions:

Dimension IV mm : 1,8 Governor-spring washer thickness Dimension V mm : 24,65

Remarks:

Gamma

Delta

Note inst. in remarks column

: IHC 5,8 P1 Test sheet Edition : 10.03.89 : 05.79 replaces

Calibrating oil : ISO 4113

Injection pump : VA 6/10H1150 CR191-1

: 0 460 306 238 Type number

Customer—specific information

Customer : IHC

Engine : D 358

TEST BENCH REQUIREMENTS

Inlet press., bar: 0,2

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

bar: 172...175 pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0,4

(from BDC): +-0.02(0.04)

Indicator setting: Piston stroke mm: 1.0 Outlet:

Injection pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900 Setting value mm: 4,0...4,8

Supply-pump pressure:

Speed 1/min: 900

Setting value bar: 5,4...5,9

Full-load del. w/out charge press.:

Speed 1/min: 800

Del.quantity cm3/

1000H.: 71,5...72,5 cm3/: 2,5

Dispersion 1000H.: -

Low-idle speed regulation:

Speed 1/min: 450

Del.quantity cm3/ 1000H.: 8,0...14,0

cm3/: 3,0Dispersion

1000H.: -

Full-load speed regulation:

Speed 1/min: 1200

Del.quantity cm3/

1000H: 29,0...35,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 70.0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed

TD travel mm: 0,8...1,8 1/min: 900

2nd speed TD travel

mm: 4,0...4,8 1/min: 1050 3rd speed

TD travel mm: 4,7...5,4

Supply-pump pressure characteristic:

1st speed 1/min: 200

Supply-pump

bar: 1,9...2,4 bar: (1,7...2,6) 1/min: 900 pressure

2nd speed

Supply-pump

bar: 5,4...5,9 bar: (5,2...6,1) 1/min: 1150 pressure

3rd speed Supply-pump

pressure

bar: 6,2...6,7 bar: (6,0...6,9)

Overflow quantity at overflow valve:

1/min: 500 1st speed

```
veflow : 55...98
quantity cm3/10s: (40...113)
Oveflow
 2nd speed 1/min: 1150
Overflow : 55...98
quantity cm3/10s: (40...113)
2nd speed
Overflow
Delivery-quant. and breakaway char.:
1st speed
                 1/min: 1280
                1000H.: -
2nd speed 1/min: 1200
Del.quantity cm3/: 29,0...35,0
1000H.: (28,0...36,0)
3rd speed 1/min: 1100
Del.quantity cm3/: 68,5...71,5
1000H.: (67,5...72,5)
4th speed 1/min: 800
Del.quantity cm3/: 71,5...72,5
1000H.: (70,5...73,5)
5th speed 1/min: 500
Del.quantity cm3/: 72,0...75,0
1000H.: (71,0...76,0)
Zero delivery (stop):
Mech. shutoff:
Speed
                 1/min: 1150
Del.quantity cm3/: - 1000H.: -
Idle delivery:
                 1/min: 450
1st speed
Del.quantity cm3/: 8,0...14,0
                1000H.: (6,0...16,0)
                 1/min: 530
2nd speed
                1000H.: -
Automatic starting fuel delivery:
1st speed
                 1/min: 250-
                 1/min: 360
2nd speed
Mounting and assembly dimensions:
Angles:
                       : 25+-40
Alpha
                       : 46+-80
Beta
                       : 30 -89
Gamma
                       : 60 +80
Delta
Initial setting dimensions:
Dimension IV mm : 2,4
Governor-spring washer thickness
```

Remarks:

Dimension V mm : 24,65

Note inst. in remarks column

: IHC 5,8 P3 Test sheet : 10.03.89 Edition : 05.79 replaces

Calibrating oil : ISO 4113

: VA 6/10H1150 CR191-1 Injection pump

Type number : 0 460 306 239

Customer-specific information

Customer

: IHC

Engine

: D 358

TEST BENCH REQUIREMENTS

Inlet press., bar: 0,2

Calibrating nozzle-holder

assembly

: 1 688 901 020

Openina

bar: 172...175 pressure

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm : 0.4Prestroke

(from BDC): +0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900 Speed

Setting value mm: 4,0...4,8

Supply-pump pressure:

1/min: 900

Setting value bar: 5,4...5,9

Speed $1/\min : 800$

Del.quantity cm3/

1000H.: 71,5...72,5 cm3/: 2,5

Dispersion

1000H .: -

Full-load del. w/out charge press.:

Low-idle speed regulation:

1/min: 450 Speed

Del.quantity cm3/

1000H.: 8,0...14,0

Dispersion cm3/: 3.0

1000H.: -

Full-load speed regulation:

1/min: 1200 Speed

Del.quantity cm3/

1000H: 29,0...35,0

Inspection pump test specifications Test specifications in parentheses

Timing device characteristic:

1st speed 1/min: 600

TD travel mm: 0,8...1,8

2nd speed 1/min: 900

TD travel mm: 4,0...4,8

3rd speed 1/min: 1050

mm: 4,7...5,4 TD travel

Supply-pump pressure characteristic:

1/min: 200 1st speed

Supply-pump

bar: 1,9...2,4 bar: (1,7...2,6) 1/min: 900 pressure

2nd speed

Supply-pump

pressure

bar: 5,4...5,9 bar: (5,2...6,1) 1/min: 1150

3rd speed

Supply-pump

pressure bar: 6,2...6,7

bar: (6,0...6,9)

Overflow quantity at overflow valve:

1/min: 500 1st speed

: 55...98 Oveflow

quantity cm3/10s: (40...113)

2nd speed 1/min: 1150

: 55...98 Overflow

quantity cm3/10s: (40...113)

Delivery-quant. and breakaway char.: 1/min: 1280 1st speed 1000н.: -2nd speed 1/min: 1200
Del.quantity cm3/: 29,0...35,0
1000H.: (28,0...36,0)
3rd speed 1/min: 1100 Del.quantity cm3/: 68,5...71,5 1000H.: (67,5...72,5) 4th speed 1/min: 800
Del.quantity cm3/: 71,5...72,5
1000H.: (70,5...73,5)
5th speed 1/min: 500
Del.quantity cm3/: 72,0...75,0
1000H.: (71,0...76,0) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1150 Del.quantity cm3/: - 1000H.: -Idle delivery: 1/min: 450 1st speed Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 1/min: 530 2nd speed 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 250-1/min: 360 2nd speed Mounting and assembly dimensions: Angles: : 25+-40 Alpha : 46+-80 Beta : 30 -8° Gamma : 60 +80 Delta Initial setting dimensions: Dimension IV mm : 2,4 Governor-spring washer thickness Dimension V mm : 24,65 Remarks:

Note inst. in remarks column

: VMA 1,5 E Test sheet Edition : 11.05.89

replaces

: ISO 4113 Calibrating oil

Injection pump : VE 4/10F2100 L353 : 0 460 403 013 Type number

Customer-specific information

Customer

Engine

: HR 392 SHJ

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery

Prestroke mm: 0,4

(from BDC): +0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1000 Speed Charge press. hPa: 1000 Setting value mm: 2,1...2,5

Supply-pump pressure:

1/min: 1000 Speed Charge press. hPa: 1000 Setting value bar: 4,2...4,8

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000 Del.quantity cm3/ 1000H.: 65,0...66,0

cm3/: 3,0 Dispersion 1000H : -

Full-load del. w/out charge press.:

Speed $1/\min : 750$

Del.quantity cm3/ 1000H.: 46,1...47,1

Low-idle speed regulation:

Speed 1/min: 460 Charge press. hPa: -Del.quantity cm3/ 1000H.: 9,5...13,5

Full-load speed regulation:

1/min: 2300 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 34,0...40,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 35,0 mind

Load-dependent start of delivery:

Speed 1/min: 1500 Charge press. hPa: 1000

Inspection—pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed Charge press. hPa: 1000

mm: 2,1...2,5 mm: (1,6...3,0) TD travel

1/min: 1500 2nd speed Charge press. hPa: 1000

mm: 3,9...4,7 mm: (3,6...5,0) 1/min: 1900 TD travel

3rd speed Charge press. hPa: 1000

mm: 5,4...6,2 mm: (5,1...6,5) TD travel

4th speed 1/min: 2100

Charge press. hPa: 1000 TD travel mm: 6,16,9 mm: (5,87,2)	+ Del.quantity cm3/: 46,147,1 + 1000H.: (44,148,1) + 8th speed 1/min: 750
Supply-pump pressure characteristic:	Charge press. hPa: 350 + Del.quantity cm3/: 55,556,5
1st speed 1/min: 600	1000H: (53,558,5) + 9th speed 1/min: 600
Charge press. hPa: -	Charge press. hPa: - Del.quantity cm3/: 42,044,0
Supply-pump pressure bar: 2,32,9 2nd speed 1/min: 1000	1000H: (40,046,0)
Charge press. hPa: 1000 Supply-pump	Zero delivery (stop):
pressure bar: 4,24,8 3rd speed 1/min: 2100	+ Electr. shutoff:
Charge press. hPa: 1000 Supply-pump	Speed 1/min: 460
pressure bar: 7,98,5	ELAB volt: - Del.quantity cm3/: 0,03,0
Overflow quantity at overflow valve:	max. 1000H.: -
1st speed 1/min: 600 Charge press. hPa: -	Idle delivery:
Oveflow : 4183 quantity cm3/10s: (2698)	+ 1st speed 1/min: 460 + Del.quantity cm3/: 9,513,5
2nd speed 1/min: 2100 Charge press. hPa: 1000	1000H.: (7,515,5) 2nd speed 1/min: 500
Overflow : 55138 quantity cm3/10s: (40153)	Del.quantity cm3/: 3,59,5 1000H.: (1,511,5)
Delivery-quant. and breakaway char.:	3rd speed 1/min: 600 Del.quantity cm3/: 0,03,0
1st speed 1/min: 750	1000H.: -
Charge-air pressure-setting point hPa: 350	Automatic starting fuel delivery:
LDA stroke mm: - Del.quantity cm3/: 55,556,5	+ 1st speed 1/min: 350 + Charge press. hPa: -
1000H.: (53,558,5) 2nd speed 1/min: 2500	+ Del.quantity cm3/: - + ind. 1000H: 42,0
Charge press. hPa: 1000 Del.quantity cm3/: 0,06,0	Shutoff electromagnet:
1000H.: - 3rd speed 1/min: 2300	- Cut-in
Charge press. hPa: 1000 Del.quantity cm3/: 34,040,0	min. voltage : 10,0 Rated voltage : 12,0
1000H.: (33,041,0) 4th speed 1/min: 2100	Mounting and assembly dimensions:
Charge press. hPa: 1000 Del.quantity cm3/: 55,257,6	Designation
1000H.: (54,258,8) 5th speed 1/min: 1500	K mm : - KF mm : 5,66,0
Charge press. hPa: 1000	MS mm : 0,61,0 + XK mm : 20,022,0
Del.quantity cm3/: 65,066,0 100UH.: (63,567,5)	+ MS mm : 0,61,0 + XK mm : 20,022,0 + XL mm : 9,913,3
6th speed 1/min: 750 Charge press. hPa: 1000	Remarks:
Del.quantity cm3/: 60,563,5 1000H.: (59,564,5)	Operate control lever after each
7th speed 1/min: 750 Charge press. hPa: -	+ manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: VMA 2,2 K Test sheet : 11.05.89 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/10F1600 L352 Injection pump

: 0 460 404 061 Type number

Customer-specific information

Customer

Engine : HR 494

k: 53 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery Prestroke mm : -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1200 Setting value mm: 1,9...2,3

Supply-pump pressure:

1/min: 1200 Speed Setting value bar: 4,8...5,4 Full-load del. w/out charge press.:

1/min : 1200

Del.quantity cm3/

1000H.: 44,5...45,5 cm3/: 3,5

Dispersion 1000H.: -

Low-idle speed regulation:

1/min: 400 Speed

Del.quantity cm3/ 1000H.: 11,5...15,5

Full-load speed regulation:

Speed 1/min: 1650

Deliquantity cm3/

1000H: 27,0...33,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 45,0 mind

Load-dependent start of delivery:

1/min: 1200 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed

mm: 0,7...1,5 mm: (0,4...1,8) 1/min: 1200 TD travel

2nd speed

mm: 1,9...2,3 mm: (1,4...2,8) TD travel

3rd speed 1/min: 1600

mm: 3,6...4,4 mm: (3,3...4,7) TD travel

Supply-pump pressure characteristic:

1st speed 1/min: 600

Supply-pump

bar: 2,4...3,0 1/min: 1200 pressure

2nd speed

Supply-pump

bar: 4,8...5,4 pressure

1/min: 1600 3rd speed

Supply-pump

bar: 6,3...6,9 pressure

Overflow quantity at overflow valve:

1/min: 600 1st speed Oveflow : 41...83 cm3/10s: (26...98) 1/min: 1600 quantity 2nd speed : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 1700 Del.quantity cm3/: 0,0...3,0 1000H.: -2nd speed 1/min: 1650 Del.quantity cm3/: 27,0...33,0 1000H.: (24,0...36,0) 3rd speed 1/min: 1625 Del.quantity cm3/: 33,5...41,5 1000H.: -4th speed 1/min: 1600
Del.quantity cm3/: 38,0...41,0
1000H.: (36,5...42,5)
5th speed 1/min: 1200
Del.quantity cm3/: 44,5...45,5
1000H.: (42,0...48,0) 1/min: 600 6th speed Del.quantity cm3/: 43,5...46,5 1000H.: (42,0...48,0) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1600 Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 400 Speed FI AB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 400 Del.quantity cm3/: 11,5..15,5 1000H.: (9,5...17,5) 2nd speed 1/min: 480 Del.quantity cm3/: 2,0...8,0 1000H.: (1,0...9,0) 1/min: 550 3rd speed Del.quantity cm3/: 0,0...3,0 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 250 Del.quantity cm3/: -

1000H: 50,0

ind.

L04

2nd speed 1/min: 450 Del.quantity cm3/: - max. 1000H: 60,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4
KF mm : MS mm : 0,6...1,0
SVS max. mm : XK mm : 17,0...19,0
XL mm : 14,2...17,6

Remarks:

Note inst. in remarks column

: FOR 2,5 A Test sheet Edition : 09.05.89 replaces : 10.86 Calibrating oil : ISO 4113

Injection pump : VE 4/11F2000 R119 : 0 460 414 007 Type number

Customer-specific information Customer : FORD

: YORK 84 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 023

Openina

bar: 172...175 pressure

Perforated plate

diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery Prestroke mm : -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1400 Speed Setting value mm: 3,2...3,6 KSB solenoid-operated valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1400 Setting value bar: 5,7...6,5 KSB solenoid-operated volt: 12,0 valve

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed

Del.quantity cm3/ 1000H.: 33,5...34,5

KSB solenoid-operated volt: 12,0 cm3/: 3,5 1000H.: (3,5) valve Dispersion

Low-idle speed regulation:

1/min: 415 Speed Del.quantity cm3/ 1000H.: 9,0...11,0

KSB solenoid-operated volt: 12,0 valve

Full-load speed regulation:

1/min: 2200 Speed Del.quantity cm3/ 1000H: 17,5...19,5

KSB solenoid-operated valve volt: 12,0

Start:

Speed 1/min: 100 Del.quantity mind cm3/1000H.: 80,0

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 3,9...4,1 A TD travel mm:

1/min: 1250 2nd speed

mm: 4,5...6,5 B TD travel

mm: -

3rd speed 1/min: 1000 TD travel

mm: 0,9...1,7 mm: (0,6...2,0)

KSB solenoid-operated

volt: 12,0 valve 1/min: 1200 mm: 1,8...2,6 mm: (1,5...2,9) 4th speed TD travel

KSB solenoid-operated volt: 12,0 valve 5th speed 1/min: 1400

mm: 3,2...3,6 mm: (2,7...4,1) TD travel Speed 1/min: 415 KSB solenoid-operated ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: valve volt: 12,0 1/min: 1650 6th speed mm: 4,7...4,9 mm: (4,6...5,0) TD travel Idle delivery: KSB solenoid-operated volt: 12.0 valve 1st speed 1/min: 415 KSB solenoid-operated valve volt: 12,0
Del.quantity cm3/: 9,0...11,0
1000H.: (5,5...14,5)
2nd speed 1/min: 500 1/min: 1900 1st speed TD travel mm: 6,9...8,1 mm: (6,8...8,2)2nd speed Overflow quantity at overflow valve: KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 3,0...8,0 1000H:: (1,0...10,0) 1st speed 1/min: 500 KSB solenoid-operated valve voit: 12,0 : 41...83 Oveflow Automatic starting fuel delivery: quantity cm3/10s: (26...98) 2nd speed 1/min: 2000 1st speed 1/min: 300 KSB solenoid-operated KSB solenoid-operated volt: 12,0 : 55...138 valve volt: 12,0 valve Del.quantity cm3/: -Overflow 1000H: 40,0 quantity cm3/10s: (40...153) ind. Delivery quant. and breakaway char .: 2nd speed 1/min: 480 KSB solenoid-operated 1st speed 1/min: 1950 valve volt: 12,0 Del.quantity cm3/: -max. 1000H: 38,0 mm: 10,0 HBA stroke KSB solenoid-operated Shutoff electromagnet: Cut-in : 10,0 KSB solenoid-operated min. voltage volt: 12,0 Rated voltage : 12.0 valve Del.quantity cm3/: 0,0...8,0 1000H.: -Mounting and assembly dimensions: 1/min: 2200 3rd speed KSB solenoid-operated Designation valve volt: 12,0
Del.quantity cm3/: 17,5...19,5
1000H.: (14,0...23,0)
4th speed 1/min: 1000 K : 3,2...3,4 KF : K-0T : 1,7...1,9 MS mm : 4,7 : 18,0...20,0 SVS max. m KSB solenoid-operated XK mm valve volt: 12,0
Del.quantity cm3/: 39,5...40,5 E
1000H.: (37,4...42,6) E XL : 10,4...13,8 mm Remarks: 1/min: 500 5th speed KSB solenoid-operated Difference in supply pump pressure valve volt: 12,0 Del.quantity cm3/: 33,5...36,5 F 1000H.: (31,6...38,4) F between 1900 min. -1 and 1000 min. -1 = 2.4...2.8 bar. Pump/engine assignment: Zero delivery (stop): Attach timing-device cover KDEP 1151. Plunger lift in blocking position = 0.75 mm referenced to outlet "A". Electr. shutoff:

Unscrew KSB ball valve 2 mm

F = Adjustment point for low full-load delivery
E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw).
D = Adjustment point for high full-load delivery

A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

: FOR 2,5 A1 Test sheet : 09.05.89 Edition replaces : 10.86 : ISO 4113 Calibrating oil

: VE 4/11F2000 R119-1 : 0 460 414 018 Injection pump Type number

Customer-specific information Customer : FORD

Engine : YORK 84

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 023 assembly

Opening

bar: 172...175 pressure

Perforated-plate

mm: 0.4 diameter

Test ini. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery Prestroke men : -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1400 Speed Setting value mm: 3,2...3,6 KSB solenoid-operated volt: 12,0 valve

Supply-pump pressure:

Speed 1/min: 1400 Setting value bar: 5,7...6,5 KSB solenoid-operated volt: 12,0 valve

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed

Del.quantity cm3/ 1000H.: 33,5...34,5

KSB solenoid-operated volt: 12,0 cm3/: 3,5 1000H.: (3,5) valve Dispersion

Low-idle speed regulation:

1/min: 415 Speed Del.quantity cm3/ 1000H.: 9,0...11,0

KSB solenoid-operated volt: 12,0 valve

Full-load speed regulation:

Speed 1/min: 2200

Del.quantity cm3/ 1000H: 17,5...19,5

KSB solenoid-operated valve volt: 12,0

Start:

1/min: 100 Speed Del.quantity mind cm3/1000H.: 80,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed

1/min: 500 mm: 3,9...4,1 A TD travel

mm: 1/min: 1250 2nd speed

mm: 4,5...6,5 B TD travel

mm:

1/min: 1000 3rd speed TD travel

mm: 0,9...1,7 mm: (0,6...2,0)

KSB solenoid-operated

volt: 12,0 valve 1/min: 1200 4th speed mm: 1,8...2,6 TD travel

mm: (1,5...2,9)

KSB solenoid-operated Volt: 12,0 1/min: 1400 valve 5th speed

TD travel mm: 3,23,6	1
mm: (2,74,1)	1/min: 415
WCD and amounted	
KSB solenoid-operated	+ ELAB volt: -
valve volt: 12,0	+ Del.quantity cm3/: 0,03,0 + max. 1000H.: -
6th speed 1/min: 1650	+ max. 1000H.: -
TD travel mm: 4,74,9	
mm: (4,65,0)	Idle delivery:
WCD and amounted	T tale delivery.
KSB solenoid-operated	†
valve volt: 12,0	+ 1st speed 1/min: 415
	+ KSB solenoid-operated
1st speed 1/min: 1900	+ valve volt: 12,0
TD travel mm: 6,98,1	Dol guantity on 3/1 0 0 11 0
	7 Dec. qualitity ChD/. 7/017/0
mm: (6,88,2)	Del.quantity cm3/: 9,011,0 1000H.: (5,514,5) 2nd speed 1/min: 500
	+ 2nd speed 1/min: 500
Overflow quantity at overflow valve:	+ KSB solenoid operated
	+ valve volt: 12,0
1st speed 1/min: 500	001 guantity cm3/. 3 8 8 0
KOD - Land day managad	Del.quantity cm3/: 3,08,0 1000H.: (1,010,0)
KSB solenoid-operated	† 1000H.: (1,010,0)
valve voit: 12,0 Oveflow : 4183	+
Oveflow : 4183	+ Automatic starting fuel delivery:
quantity cm3/10s: (2698)	1
2nd speed 1/min: 2000	+ 1st speed 1/min: 300
Kon and an intermediate	T 15t Speed (7)(11)
KSB solenoid-operated	+ KSB solenoid-operated
valve volt: 12,0	+ valve volt: 12,0
Overflow : 55138	+ Del.quantity cm3/: -
quantity cm3/10s: (40153)	+ ind. 1000H: 40,0
qualities and too. (40.1.122)	11M. 100011. 40/0
No. 1. 2. company and the soul	7 204 4 4/ 100
Delivery-quant. and breakaway char.:	+ 2nd speed 1/min: 480
	+ KSB solenoid-operated
1st speed 1/min: 1950	+ valve volt: 12,0
HBA stroke mm: 10,0	+ Del.quantity cm3/: -
VCD released encented	10001 . 70 0
KSB solenoid-operated	+ max. 1000H: 38,0
valve volt: 12,0	†
Del.quantity cm3/: 40,042,0 0	+ Shutoff electromagnet:
1000H.: (38,443,6) D	1
2nd speed 1/min: 2350	+ Cut-in
KSB solenoid-operated	+ min. voltage : 10,0
valve volt: 12,0	+ Rated voltage : 12,0
Del.quantity_cm3/: 0,08,0	+
1000H.: -	+ Mounting and assembly dimensions:
3rd speed 1/min: 2200	
	T Nacionation
KSB solenoid-operated	+ Designation
valve volt: 12,0	+ K mm : 3,23,4
Del.quantity cm3/: 17,519,5	+ KF mm : K-OT
1000H.: (14,023,0)	+ MS mm : 1,71,9
4th speed 1/min: 1000	+ SVS max. mm : 4,7
	VV
KS9 solenoid-operated	+ XK mm : 18,020,0
valve volt: 12,0	+ XL mm : 10,413,8
Del.quantity cm3/: 39,540,5 E	+
1000H.: (37,442,6) E	+ Remarks:
5th speed 1/min: 500	
KSB solenoid-operated	1 Difference in cumply nump processes
LOD SOFEINIA-COLUMN	+ Difference in supply pump pressure
valve volt: 12,0 Del.quantity cm3/: 33,536,5 F	between 1900 min1 and 1000 min1 = 2.42.8 bar.
Deliquantity cm3/: 33,536,5 F	+ 1000 min. $-1 = 2.42.8$ bar.
1000H.: (31,638,4) F	+
	+ Pump/engine assignment:
Zero delivery (stop):	Attach timing-device cover KDEP 1151.
zero decivery colopy.	T urrant riming assire coset when 1171.
	1 Dismann läyfib än blankiinn manidiisii —
	+ Plunger lift in blocking position =
	+ 0.71
Electr. shutoff:	+ Plunger lift in blocking position = 0.71 + 0.75 mm referenced to outlet "A".
Electr. shutoff:	+ 0.71

Unscrew KSB ball valve 2 mm

F = Adjustment point for low full-load delivery
E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw).
D = Adjustment point for high full-load delivery

A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

: PER 2,0 A Test sheet 09.05.89 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/11F2250 R228 Injection pump : 0 460 414 029 Type number

Customer-specific information Customer : PERKINS

: 4.20 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina .

pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block mm: 1,37 Piston stroke mm: +0,02(0,06)

Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing device travel:

Speed 1/min: 1800 Setting value mm: 3,1...3,5 KSB solenoid-operated valve volt: 12,0

Supply-pump pressure:

1/min: 1800 Speed Setting value bar: 6,2...6,8 KSB solenoid-operated

volt: 12.0 valve

Full-load del. with charge press.:

1/min: 500 Speed

Del.quantity cm3/ 1000H.: 19,0...20,0

KSB solenoid-operated volt: 12,0 valve cm3/:4.0Dispersion 1000H: -

Low-idle speed regulation:

1/min: 400 Speed Del.quantity cm3/ 1000H.: 8,0...10,0

KSB solenoid-operated valve volt: 12,0 Dispersion cm3/: 3.01000H.: -

Full-load speed regulation:

Speed 1/min: 2500 Del.quantity cm3/ 1000H: 23,5...25,5

KSB solenoid-operated valve volt: 12,0

Start:

Speed 1/min: 100 Del.quantity mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500

TD travel mm: 2,2...2,4 A mm: (1,5...3,1) A

KSB solenoid-operated valve volt: -

1/min: 1200 2nd speed

mm: 2,1...4,1 B mm: (1,9...4,3) B TD travel

KSB solenoid-operated valve volt: -1/min: 1500 3rd speed TD travel

mm: 1,5...2,3 mm: (1,2...2,6)

Man and a still as make it	1 6.1
KSB solenoid-operated	+ Del.quantity cm3/: 23,525,5 + 1000H.: (20,029,0)
valve volt: 12,0	+ 1000H.: (20,029,0)
4th speed 1/min: 1800 TD travel mm: 3,13,5	+ 4th speed 1/min: 2250
TD travel mm: 3,13,5	+ KSB solenoid-operated
mm: (2,64,0)	+ valve volt: 12,0
KSB solenoid-operated	+ Del.quantity cm3/: 57.562.5 D
valve volt: 12.0	+ Del.quartity cm3/: 57,562,5 D + 1000H.: (57,462,6) D
valve volt: 12.0 5th speed 1/min: 2250	+ 5th speed 1/min: 1000
TD +novel mm. 1.0 5.7	YSD colonaid appropriate
TD travel mm: 4,95,7	+ KSB solenoid-operated
MM: (4,00,U)	+ valve volt: 12,0
KSB solenoid-operated	+ Deliquantity cm3/: 42,843,8 E
valve volt: 12,0	+ Del.quantity cm3/: 42,843,8 E + 1000H.: (40,745,9) E
	+ 6th speed 1/min: 500
Supply-pump pressure characteristic:	+ KSB solenoid-operated
a shift of the same of the same and sam	+ valve volt: 12,0
1st speed 1/min: 1000	Del.quantity cm3/: 19,020,0 F
	1000u . (14 0 22 1) E
Supply-pump	1000H.: (16,922,1) F
pressure bar: 4,34,9	. †
KSB solenoid-operated	+ Zero delivery (stop):
valve volt: 12,0	+
valve volt: 12,0 2nd speed 1/min: 1800	+
SUDD-LYDUMD	+ Electr. shutoff:
pressure bar: 6,26,8	1
KSB solencid-operated	4 Speed 1/min: 400
valve volt: 12,0	+ ELAB volt: -
3rd speed 1/min: 2250	
Simple name	- Del.quantity cm3/: 0,03,0
Supply-pump	+ max. 1000H.: −
pressure bar: 7,48,0	†
KSB solenoid-operated	+ Idle delivery:
valve volt: 12,0	+
	+ 1st speed 1/min: 400
Overflow quantity at overflow valve:	+ KSB solenoid-operated
•	+ valve volt: 12,0
1st speed 1/min: 500	<pre>Del.guantity cm3/: 8,010,0</pre>
KSB solenoid-operated	Del.quantity cm3/: 8,010,0 1000H.: (4,513,5)
valve volt: 12.0	+ 2nd speed 1/min: 500
valve volt: 12,0 Oveflow : 4183	+ KSB solenoid-operated
quantity cm3/10s: (2698)	+ valve volt: 12,0
2nd speed 1/min: 2250	+ Del.quantity cm3/: 1,07,0
KSB solenoid-operated	1000u · (0 0 0 5)
Nob social in the decident	1000H.: (0,08,5)
valve volt: 12,0	T Automobile structure for deliberation
Overflow : 55138	+ Automatic starting fuel delivery:
quantity cm3/10s: (40153)	†
N 4 2	201 1 44 700
Delivery-quant. and breakaway char.:	+ 2nd speed 1/min: 300
	+ KSB solenoid-operated
1st speed 1/min: 2250	+ valve volt: 12,0
HBA stroke mm: 10,4	+ Del.quantity_cm3/: -
KSB solenoid-operated	+ max. 1000H: 40,0
valve volt: 12,0	+
Del.quantity cm3/: 57,562,5 D	+ Shutoff electromagnet:
1000H.: (57,462,6) D	+
2nd speed 1/min: 2600	+ Cut-in
KSB solenoid-operated	min. voltage : 10,0
valve volt: 12,0	Rated voltage : 12,0
hal diantity cm2/. A A 15 A	Matta voltage . 12/0
Del.quantity cm3/: 0,015,0 1000H.: -	I Mounting and accombly dimensions:
And chood 1/min 2500	f Mounting and assembly dimensions:
3rd speed 1/min: 2500	Topionation
KSB solenoid-operated	+ Designation - 72 7/
valve volt: 12,0	$\frac{1}{4}$ K mm : 3,23,4

Remarks:

A = KSB adjustment point B = KSB curve point

F = Adjustment point for low full-load delivery
E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw).
D = Adjustment point for high full-load delivery

Note inst. in remarks column

Test sheet : PER 2,0 B Edition : 09.05.89

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F2250 R229 Type number : 0 460 414 030

Customer—specific information Customer : PERKINS

: T 4.20 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

pressure bar: 130...133

Test ini. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block Piston stroke mm: 1,00

mm: +0,02(0,06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Setting value mm: 3,0...3,4 KSB solenoid-operated valve volt: -

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 800 Setting value bar: 7,1...7,7 KSB solenoid-operated

valve volt: 12,0

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 800 Del.quantity cm3/ 1000H.: 66,5...67,5

KSB solenoid-operated volt: 12,0 valve cm3/:4,0Dispersion 1000H: -

Full-load del. w/out charge press.:

1/min : 500 Speed Del.quantity cm3/ 1000H.: 17,0...18,0

KSB solenoid-operated volt: 12,0 valve cm3/: 4,0 Dispersion 1000H .: -

Low-idle speed regulation:

1/min: 400 Speed Charge press. hPa: -Del.quantity cm3/ 1000H.: 10,0...12,0

KSB solenoid-operated valve volt: 12,0 Dispersion cm3/: 3,01000H.: (4,0)

Full-load speed regulation:

Speed 1/min: 2500 Charge press. hPa: 800 Deliquantity cm3/

1000H: 23,5...25,5

KSB solenoid-operated volt: 12,0 valve

Start:

1/min: 100 Speed

Del.quantity : 60,0...100,0

cm3/1000H.: -KSB solenoid-operated volt: 12,0 valve

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	+ KSB solenoid-operated + valve volt: 12,0 + Oveflow : 4183
1st speed 1/min: 500	+ quantity cm3/10s: (2698)
Charge press. hPa: 800	+ 2nd speed 1/min: 2250
TD travel mm: 1,82,0 A	+ Charge press. hPa: 800
mm: (1,12,7) A	+ KSB solenoid-operated
KSB solenoid-operated	+ valve volt: 12,0
valve volt: -	+ Overflow : 55138
2nd speed 1/min: 800	quantity cm3/10s: (26153)
Charge press. hPa: 800	quarterey chorisos. (Eost. 155)
The tracked and 10 700	T Naldisanis minute and honorisas about
TD travel mm: 1,03,0 B	† Delivery-quant. and breakaway char.
mm: (0,83,2) B	†
KSB solenoid-operated	+ 1st speed 1/min: 800
valve volt: -	+ Charge-air pressure-setting
3rd speed 1/min: 1000	+ point hPa: 300
Charge press. hPa: 800	+ LDA stroke mm: 6,5
TD travel mm: 0,61,4	+ KSB solenoid-operated
(0 7 4 7)	T Nob socciona operated
mm: (0,31,7)	+ valve volt: 12,0 + Del.quantity cm3/: 34,735,7
KSB solenoid-operated	+ Deliquantity cm3/: 34/135/
valve volt: 12,0	+ 1000H.: (51,758,7)
4th speed 1/min: 1500	+ 2nd speed 1/min: 2600
Charge press. hPa: 800	+ Charge press. hPa: 800
TD travel mm: 3,03,4	+ KSB solenoid-operated
mm: (2,63,8)	+ valve volt: 12,0
VCD salanaid-anarated	Dol guartity and/1 0 0 10 0
KSB solenoid-operated	+ Del.quantity cm3/: 0,010,0 + 1000H.: -
valve volt: 12,0	10001.: -
5th speed 1/min: 2000	+ 3rd speed 1/min: 2500
Charge press. hPa: 800	+ Charge press. hPa: 800
TD travel mm: 5,86,6	+ KSB solenoid-operated
mm: (5,56,9)	+ valve volt: 12,0
KSB solenoid-operated	+ Del.guantity cm3/: 23/525/5
valve volt: 12,0	+ Del.quantity cm3/: 23,525,5 + 1000H.: (20,528,5)
70.00 12/0	4th speed 1/min: 2250
Supply-pump pressure characteristic:	Charge press. hPa: 800
supply pulip pressure characteristic.	VSD colonoid energed
1-t 1/ 1000	+ KSB solenoid-operated
1st speed 1/min: 1000	+ valve volt: 12,0
Charge press. hPa: 800	+ Del.quantity cm3/: 69,073,0
Supply-pump	+ 1000H.: (68,074,0)
pressure bar: 6,16,7	+ 5th speed 1/min: 1250
KSB solenoid-operated	+ Charge press. hPa: 800
valve volt: 12,0	+ KSB solenoid-operated
2nd speed 1/min: 1500	+ valve volt: 12,0
Charge press. hPa: 800	+ Del.quantity cm3/: 66,567,5
Supply-pump	1000H.: (64,569,5)
	+ 6th speed 1/min: 800
pressure bar: 7,17,7	Change apose hose 200
KSB solenoid-operated	Charge press. hPa: 300
_valvevolt: 12,0	+ KSB solenoid-operated
3rd speed 1/min: 2000	+ valve volt: 12,0
Charge press. hPa: 800	+ Del.quantity cm3/: 34,735,7
Supply-pump	+ 1000H.: (31,738,7)
pressure bar: 8,18,7	+ 7th speed 1/min: 500
KSB solenoid-operated	+ Charge press. hPa: 800
valve volt: 12,0	+ KSB solenoid-operated
10001 1070	+ valve volt: 12,0
Overflow quantity at overflow valve:	1 Del quentity cm3/: 59 5 45 5
THE TOTAL CONTROL OF THE TOTAL POLYCI	Del.quantity cm3/: 59,565,5 1000H.: -
1st speed 1/min: 500	
	+ 8th speed 1/min: 500
Charge press. hPa: 800	KSB solenoid-operated
	- VALVE V(11.1.1/1)

Del.quantity cm3/: 17,0...18,0 1000H: (14,5...20,5) Zero delivery (stop): Electr. shutoff: Speed 1/min: 400 ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 400 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 10,0..12,0 1000H.: (7,0...15,0) 1/min: 500 2nd speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 2,0...8,0 1000H.: (1,0...9,0) Automatic starting fuel delivery: 2nd speed 1/min: 300 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: -1000H: 30,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation mm : 3,2...3,4K KF mm : K-OT mm : 0,35.0,75 mm : 4,3 MS SVS max. mm : 20,0...22,0XK XL mm : 9,6...13,0Remarks: A = KSB adjustment point B = KSB curve point Unscrew KSB ball valve 2 mm

Note inst. in remarks column

: FOR 2,5 B Test sheet : 12.05.89 Edition : 13.01.89 replaces Calibrating oil : ISO 4113

: VE 4/11F2000 R288 : 0 460 414 051 Injection pump Type number

Customer-specific information Customer : FORD

: 2,5 DI Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 023 assembly

Opening |

bar: 172...175 pressure

Perforated plate

diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block Piston stroke mm: 0,78

mm: 0,73...0,83

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1250 Speed Setting value mm: 2,5...2,9 Supply-pump pressure:

1/min: 1250 Speed Setting value bar: 5,6...6,2

Full-load del. w/out charge press.:

1/min: 500 Speed

Del.quantity cm3/ 1000H.: 30,5...31,5

Low-idle speed regulation:

1/min: 425 Speed

Del.quantity cm3/ 1000H.: 14,0...18,0

Full-load speed regulation:

Speed 1/min: 2100

Deliquantity cm3/

1000H: 29,5...33,5

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 62,0 mind

Inspection pump test specifications Test specifications in parentheses

Timing device characteristic:

1st speed 1/min: 800

mm: 0,0...0,8 mm: (0,0...1,1) TD travel

1/min: 1250 2nd speed

TD travel mm: 2,5...2,9 mm: (2,2...3,2)

1/min: 1950 3rd speed

TD travel mm: 6,0...6,8 mm: (5,7...7,1)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3,1...3,7 1/min: 1000 pressure 2nd speed

Supply-pump

bar: 4.8...5,4 1/min: 1250 pressure 3rd speed

Supply-pump

bar: 5,6...6,2 1/min: 1950 pressure 4th speed

Supply-pump

bar: 7,7...8,3 pressure

Overflow quantity at overflow valve: 1st speed 1/min: 500 : 41...83 Oveflow cm3/10s: (26...98) quantity 1/min: 1950 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1950 1st speed mm: 10,0 HBA stroke Del.quantity cm3/: 37,0...40,6 D 1000H.: (36,3...41,3) D 2nd speed 1/min: 2350 Del.quantity cm3/: 0,0...10,0 1000H.: -3rd speed 1/min: 2200
Del.quantity cm3/: 17,0...25,0
1000H.: (15,0...27,0)
4th speed 1/min: 2100
Del.quantity cm3/: 20.5 Del.quantity cm3/: 29,5...33,5 1000H.: (26,5...36,5) 5th speed 1/min: 1950 Del.quantity cm3/: 37,0...40,6 1000H.: (36,3...41,3) 6th speed 1/min: 1700 Del.quantity cm3/: 36,7...40,3 1000H.: (36,0...41,0) 1/min: 1000 7th speed Del.quantity cm3/: 33,8...34,8 E 1000H.: (31,8...36,8) E 8th speed 1/min: 500 Del.quantity cm3/: 30,5...31,5 F 1000H: (26,0...36,0) F Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: max. Idle delivery: 1st speed 1/min: 425 Del.quantity cm3/: 14,0..18,0 1000H.: (12,0..20,0) 2nd speed 1/min: 500 Del.quantity cm3/: 7,5...15,5 1000H.: (5,5...17,5)

Automatic starting fuel delivery:

1/min: 300

2nd speed 1/min: 480 Del.quantity cm3/: -1000H : 34,0 max. Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation : 3,2...3,4 mm KF : K-OT : 1,3...1,7 mm MS mm SVS max. mm : 3,8 mm : 17,0...19,0 XK ΧĻ : 10,9...14,5 1101 Remarks: Pump/engine assignment: Stroke in blocking position 0.73... 0.83 mm, referenced to outlet "B". Attach timing-device cover KDEP 1151. F = Adjustment point for low full-load delivery E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw). D = Adjustment point for high fullload delivery Adjust part-load delivery: Setting = 12.0 mm

Del.quantity cm3/: ind. 1000H: 30,0

L18

1st speed

Note inst. in remarks column

: FOR 2,5 C Test sheet Edition : 12.05.89 : 13.01.89 replaces Calibrating oil : ISO 4113

: VE 4/11F2000 R288-1 Injection pump : 0 460 414 052 Type number

Customer-specific information : FORD Customer

: 2,5 DI Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 023 assembly

Opening

bar: 172...175 pressure

Perforated-plate

mm: 0.4 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block Piston stroke mm: 0.78mm: 0,73...0,83

Outlet. : B

Injection-pump setting values Test specifications in parentheses

Timing device travel:

1/min: 1250 Setting value mm: 2,5...2,9 Supply-pump pressure:

1/min: 1250 Speed Setting value bar: 5,6...6,2

Full-load del. w/out charge press.:

1/min: 500 Speed Del.quantity cm3/

1000H.: 30,5...31,5 F

Low-idle speed regulation:

1/min: 425 Speed

Del.quantity cm3/ 1000H.: 16,0...20,0

Full-load speed regulation:

Speed 1/min: 2100

Del.quantity cm3/

1000H: 30,5...34,5 cm3/: 3,0

Dispersion 1000H.: (4,0)

Start:

1/min: 100 Speed Del quantity cm3/1000H.: 62,0 mind `

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800

mm: 0,0...0,8 TD travel mm: (0,0...1,1)

1/min: 1250 2nd speed TD travel

mm: 2,5...2,9 mm: (2,2...3,2) 1/min: 1950

3rd speed TD travel

mm: 6,0...6,8 mm: (5,7...7,1)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3,1...3,7 1/min: 1000 pressure 2nd speed

Supply-pump

bar: 4,8...5,4 1/min: 1250 pressure 3rd speed

Supply-pump

bar: 5,6...6,2 1/min: 1950 pressure 4th speed

bar: 7,7...8,3 pressure Overflow quantity at overflow valve: 1/min: 500 1st speed : 41...83 Oveflow quantity cm3/10s: (26...98) 2nd speed 1/min: 1950 : 55...138 Overflow quantity cm3/10s: (40...153) Delivery quant. and breakaway char.: 1/min: 1950 1st speed mm: 10,0 HBA stroke Del.quantity cm3/: 37,0...40,6 D 1000H.: (36,3...41,3) D 1/min: 2350 cm3/: 0,0...10,0 2nd specu Del.quantity cms/: 1000H.: 2nd speed 3rd speed 1/min: 2200 Del.quantity cm3/: 17,0...25,0 1000H.: (15,0...27,0) 1/min: 2100 4th speed Del.quantity cm3/: 30,5...34,5 1000H.: (27,5...37,5) 1/min: 1950 5th speed Del.quantity cm3/: 37,0...40,6 1000H.: (36,3...41,3) 6th speed 1/min: 1700 Del.quantity cm3/: 37,7...41,3 1000H.: (37,0...42,0) 1/min: 1000 7th speed Del.quantity cm3/: 34,8...35,8 E 1000H.: (32,8...37,8) E 1/min: 500° 8th speed Del.quantity cm3/: 30,5...31,5 F 1000H: (26,0...36,0) F Zero delivery (stop): Electr. shutoff: Speed 1/min: 425 ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1/min: 425 1st speed Del.quantity cm3/: 16,0..20,0 1000H.: (14,0..22,0) 2nd speed 1/min: 500 Del.quantity cm3/: 7,5...15,5 1000H.: (5,5...17,5) Arrangement of drivers on engine-

Supply-pump

speed lever for exhaust-gasrecirculation valve linkage (guage) 1st speed 1/min: 1250 Del.quantity cm3/: 23,0..24,0 1000H.: (21,0..26,0) Automatic starting fuel delivery: 1/min: 300 1st speed Del.quantity cm3/: -1000H: 30,0 ind. 2nd speed 1/min: 480 Del.quantity cm3/: - max. 1000H: 34,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation : 3,2...3,4 Κ m KF : K-OT mm : 1,3...1,7 MS mm : 3,8 : 17,0...19,0 SVS max. mm XK mm XL : 10,9...14,5 mm Remarks: Pump/engine assignment: Stroke in blocking position 0.73...
0.83 mm, referenced to outlet "B".
Attach timing device cover KDEP 1151. F = Adjustment point for low full-load delivery E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw). D = Adjustment point for high fullload delivery

Adjust part-load delivery: Setting = 12.0 mm

Note inst. in remarks column

: FOR 2,5 E Test sheet Edition : 12.05.89 : 13.01.89 replaces Calibrating oil : ISO 4113

: VE 4/11F2000 R288-3 : 0 460 414 062 Injection pump Type number

Customer-specific information

Customer : FORD

Engine : 2,5 DI

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 023 assembly

Opening |

bar: 172...175 pressure

Perforated plate

mm: 0.4 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 x Length mm: 450

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block Piston stroke mm: 0,78

mm: 0,73...0,83

Outlet

Injection pump setting values Test specifications in parentheses

Timing device travel:

1/min: 1250 Speed Setting value mm: 2,5...2,9 Supply-pump pressure:

1/min: 1250 Speed Setting value bar: 5,6...6,2

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed

Del.quantity cm3/ 1000H.: 30,5...31,5

Low-idle speed regulation:

1/min: 425 Speed

Del.quantity cm3/ 1000H.: 14,0...18,0

Full-load speed regulation:

Speed 1/min: 2100

Del.quantity cm3/

1000H: 29,5...33,5 cm3/: 3,0

Dispersion 1000H.: (4,0)

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 62,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800

mm: 0,0...0,8TD travel mm: (0,0...1,1)

1/min: 1250 2nd speed TD travel

mm: 2,5...2,9 mm: (2,2...3,1) 1/min: 1950 3rd speed

mm: 6,0...6,8 mm: (5,7...7,1) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump bar: 3,1...3,7 1/min: 1000 pressure 2nd speed

Supply-pump

bar: 4,8...5,4 1/min: 1250 pressure

3rd speed Supply-pump

bar: 5,6...6,2 1/min: 1950 pressure 4th speed

Supply-pump pressure bar: 7,7...8,3 Overflow quantity at overflow valve: 1st speed 1/min: 500 **Oveflow** : 41...83 quantity cm3/10s: (26...98) 1/min: 1950 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1950 1st speed HBA stroke mm: 10,0 Del.quantity cm3/: 37,0...40,6 D 1000H.: (36,3...41,3) D 2nd speed 1/min: 2350
Del.quantity cm3/: 0,0...10,0
1000H.: -3rd speed 1/min: 2200
Del.quantity cm3/: 17,0...25,0
1000H.: (15,0...27,0)
4th speed 1/min: 2100 Del.quantity cm3/: 29,5...33,5 1000H.: (26,5...36,5) 5th speed 1/min: 1950
Del.quantity cm3/: 37,0...40,6
1000H.: (36,3...41,3) 6th speed 1/min: 1700
Del.quantity cm3/: 36,7...40,3
1000H.: (36,0...41,0) 1/min: 1000 7th speed Del.quantity cm3/: 33,8...34,8 E 1000H.: (31,8...36,8) E 8th speed 1/min: 500
Del.quantity cm3/: 30,5...31,5 F
1000H: (26,0...36,0) F Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -

Idle delivery:

Arrangement of drivers on engine-

speed lever for exhaust-gasrecirculation valve linkage (guage)

1st speed 1/min: 1250 Del.quantity cm3/: 23,0..24,0 1000H.: (21,0..26,0)

Automatic starting fuel delivery:

2nd speed 1/min: 480 Del.quantity cm3/: - max. 1000H : 34,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation mm : 3,2...3,4K KF : K-OT mm : 1,3...1,7 : 3,8 : 17,0...19,0 MS mm SVS max. mm XK mm XL : 10,9...14,5 mm

Remarks:

F = Adjustment point for low full-load delivery
E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw).
D = Adjustment point for high full-load delivery

Adjust part-load delivery: Setting = 12.0 mm

Pump/engine assignment: Stroke in blocking position 0.73... 0.83 mm, referenced to outlet "B". Attach timing-device cover KDEP 1151.

Note inst. in remarks column

: SOF 2,5 P1 : 10.05.89 Test sheet Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F2000 R342

Type number : 0 460 414 067

Customer—specific information Customer : IVECO-SOFIM

Engine : 8140.07.2700

TEST BENCH REQUIREMENTS

Calibrating oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

pressure bar: 250...253

Perforated plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Lenath

Start of delivery

Prestroke mm: 0,3

(from BDC): +0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1100 Setting value mm: 3,1...3,5

Supply-pump pressure:

1/min: 1900 Setting value bar: 5,7...6,3 Full-load del. w/out charge press.:

1/min: 525 Speed

Del.quantity cm3/ 1000H.: 27,0...28,0

Low-idle speed regulation:

Speed 1/min: 350

Del.quantity cm3/ 1000H.: 10,5...14,5

Full-load speed regulation:

1/min: 2300 Speed

Del.quantity cm3/

1000H: 18,0...22,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 40,0 mind

Load-dependent start of delivery:

1/min: 1100 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

1st speed 1/min: 600

TD travel mm: 0,6...1,4mm: (0,4...1,6)

2nd speed

1/min: 1100 mm: 3,1...3,5 mm: (2,7...3,9) TD travel

1/min: 1500 3rd speed

mm: 4,1...4,9 mm: (3,8...5,0) TD travel

Supply-pump pressure characteristic:

1st speed 1/min: 600

Supply-pump

bar: 4,1...4,7 1/min: 1100 pressure 2nd speed

Supply-pump

pressure

bar: 5,7...6,3 1/min: 1500 3rd speed

Supply-pump

bar: 6,9...7,5 pressure

Overflow quantity at overflow valve:

1st speed 1/min: 525

L23

: 41...83 cm3/10s: (26...98) 1/min: 2000 : 55...138 Oveflow | quantity 2nd speed Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 2450 Del.quantity cm3/: 0,0...5,0 1000H.: -2nd speed 1/min: 2300
Del.quantity cm3/: 18,0...22,0
1000H.: (15,5...24,5) 3rd speed 1/min: 2200 Del.quantity cm3/: 32,0...40,0 1000H.: (31,5...40,5) 1/min: 2000 4th speed Del.quantity cm3/: 48,0...53,0 1000H.: (46,5...54,5) 1/min: 1500 5th speed Del.quantity cm3/: 53,2...58,2 1000H.: (51,7...59,7) 6th speed 1/min: 1100 Del.quantity cm3/: 54,0...55,0 1000H.: (52,0...56,0) 1/min: 525 7th speed Del.quantity cm3/: 27,0...28,0 1000H.: (25,0...30,0) Zero delivery (stop): Electr. shutoff: 1/min: 350 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 350 Del.quantity cm3/: 10,5..14,5 1000H.: (8,5...16,5) 1/min: 300 2nd speed Del.quantity cm3/: 27,0..35,0 1000H.: (26,0..36,0) 1/min: 400 3rd speed Del.quantity cms/: cm3/: 0.0...5.0Automatic starting fuel delivery: 1st speed 1/min: 350 Del.quantity cm3/: -1000H: 40,0 ind. 1/min: 450 2nd speed

Del.quantity cm3/: max. 1000H : 40,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : KF mm : K-OT
MS mm : 0,8...1,2
SVS max. mm : 3,5

Remarks:

Note inst. in remarks column

: CUM 3,9 A : 17.05.89 Test sheet Edition : 10.84 replaces Calibrating oil : ISO 4113

: VE 4/12F1250 R123 Injection pump : 0 460 424 006 Type number

Customer-specific information

Customer : CDC

: 4 T.390 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 016 assembly

Opening .

bar: 207...210 pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke

e mm: 0,3 (from BDC): +-0,02(0,04)

Start of delivery block Piston stroke mm: 2,00

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900

Setting value mm: 2,3...2,7

Supply-pump pressure:

1/min: 900 Speed Setting value bar: 4,5...5,1

Full-load del. w/out charge press.:

1/min : 1100 Speed

Del.quantity cm3/

1000H.: 85,0...86,0 cm3/: 4,0_

Dispersion 1000H.: (4,5)

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/

1000H.: 18,5...24,5 cm3/: 3,5

Dispersion

1000H.: (4.5)

Full-load speed regulation:

1/min: 1340 Speed

Del.quantity cm3/

1000H: 24,5...32,5

Start:

1/min: 100 Speed Del.quantity

cm3/1000H.: 97,0 mind

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750

mm: 1,1...1,9 mm: (0,8...2,2 TD travel

1/min: 900 2nd speed

mm: 2,3...2,7 mm: (1,8...3,2) TD travel

3rd speed 1/min: 1100

TD travel

mm: 3,2...4,0 mm: (2,9...4,3) 1/min: 1250

4th speed

TD travel

mm: 3,7...4,5 mm: (3,4...4,8)

Supply-pump pressure characteristic:

1/min: 400 1st speed

Supply-pump

bar: 2,3...2,9 1/min: 750 pressure

2nd speed

Supply-pump bar: 3,8...4,4 pressure 1/ain: 900 3rd speed Supply-pump bar: 4,5...5,1 pressure 1/min: 1100 4th speed Supply-pump bar: 5,3...5,9 pressure Overflow quantity at overflow valve: 1/min: 600 1st speed : 41...83 Oveflow cm3/10s: (26...98) quantity 1/min: 1250 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1400 _cm3/: 0,0...1,0 1st speed Del.quantity 1000H .: -Del.quantity cm3/: 80,0...83,0 1000H.: (78,5...84,5) 4th speed 1/min: 1100 Del.quantity cm3/: 85,0...86,0 1000H.: (82,5...88,5) 1/min: 750 5th speed Del.quantity cm3/: 88,5...92,5 1000H.: (86,7...94,3) 6th speed 1/min: 600 Del.quantity cm3/: 88,5...92,5 1000H.: (86,7...94,3) Zero delivery (stop): Electr. shutoff: Speed 1/min: 375 ELAB volt: -Del.quantity cm3/: - max. 1000H.: -Idle delivery: 1/min: 375 1st speed Del.quantity cm3/: 18,5..24,5 1000H.: (16,5..26,5) 2nd speed 1/min: 450 Del.quantity cm3/: 0,0...1,5 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130 Del.quantity cm3/: -1000H: 97,0 ind.

2nd speed 1/min: 200 Del.quantity cm3/: - max. 1000H: 85,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

mm : 5,0...5,4 : 1,3...1,7 : 3,7 : 20,2...22,2 : 13,2...16,5 KF mm MS mm SVS max. mm mm

XK XL mm

Remarks:

Note inst. in remarks column

: CUM 3,9 03 Test sheet : 16.05.89 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/12F1250 R239 Injection pump

: 0 460 424 030 Type number

Customer-specific information

Customer : CDC

Engine : 4 BTA

k: 88 Power Speed 1/mi: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery

Prestroke mm: 0,3

(from BDC): +0.02(0.04)

Start of delivery block mm: 1,95 Piston stroke

mm: +0,02(0,06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100 Charge press. hPa: 1000 Setting value mm: 2,0...2,4

Supply-pump pressure:

1/min: 1100 Speed Charge press. hPa: 1000 Setting value bar: 5,6...6,2

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000

Deliquantity cm3/

1000H.: 76,0...77,0

cm3/: 4,0 1000H: (4,5) Dispersion

Full-load del. w/out charge press.:

Speed $1/\min : 500$

Del.quantity cm3/ 1000H.: 56,0...57,0

Low-idle speed regulation:

Speed 1/min: 375 Charge press. hPa: -

Del.quantity cm3/

1000H.: 10,0...12,0 cm3/: 5,5

Dispersion

1000H.: (7,0)

Full-load speed regulation:

1/min: 1360 Speed Charge press. hPa: 1000

Deliquantity cm3/

1000H: 60,0...66,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 70,0 mind

Inspection pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1/min: 850 1st speed Charge press. hPa: 1000

mm: 0,6...1,4TD travel

mm: (0,3...1,7)1/min: 1100

2nd speed

Charge press. hPa: 1000 mm: 2.02 mm: (1.5	24,9)	Del.quantity cm3/: 60,066,0 1000H.: 57,070,0) 6th speed 1/min: 1250
3rd speed 1/min: 1250 Charge press. hPa: 1000 TD travel mm: 2,63 mm: (2,3	1447)	Charge press. hPa: 1000 Del.quantity cm3/: 73,576,5 1000H.: (72,078,0) 7th speed 1/min: 1100
Supply-pump pressure charac	+	Charge press. hPa: 1000 Del.quantity cm3/: 75,578,5 1000H.: (73,580,5)
1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump	<u> </u>	8th speed 1/min: 850 Charge press. hPa: 1000 Del.quantity cm3/: 76,077,0 1000H: (73,579,5)
pressure bar: 3,03 2nd speed 1/min: 850 Charge press. hPa: 1000 Supply-pump	7,0	9th speed 1/min: 700 Charge press. hPa: 450 Del.quantity cm3/: 72,073,0
pressure bar: 4,65 3rd speed 1/min: 1100 Charge press. hPa: 1000	,2	1000H: (68,576,5) 10th speed 1/min: 500 Charge press. hPa: 1000
Supply-pump pressure bar: 5,66 4th speed 1/min: 1250 Charge press. hPa: 1000	,,2	Del.quantity cm3/: 89,599,5 1000H: - 11th speed 1/min: 500 Charge press. hPa: -
Supply-pump pressure bar: 6,26	-	Del.quantity cm3/: 56,057,0 1000H: (52,560,5)
Overflow quantity at overflow	ow valve:	Zero delivery (stop):
1st speed 1/min: 500 Charge press. hPa: - Oveflow : 4183 quantity cm3/10s: (2692 2nd speed 1/min: 1250		Mech. shutoff: Speed 1/min: 1400 Del.quantity cm3/: 03 1000H.: -
Charge press. hPa: 1000 Overflow : 5513 quantity cm3/10s: (401		Electr. shutoff:
Delivery-quant. and breakaw	ay char.:	Speed 1/min: 400 ELAB volt: - Del.quantity_cm3/: 0,03,0
1st speed 1/min: 700 Charge-air pressure-setting point hPa: 450	† + +	max. 1000H.: - Idle delivery:
LDA stroke mm: 6,5 Del.quantity cm3/: 72,0 1000H.: (68,5 2nd speed 1/min: 1550		1st speed 1/min: 375 Del.quantity cm3/: 10,012,0 1000H.: (6,016,0)
Charge press. hPa: 1000 Del.quantity cm3/: 0,03 1000H.: -	,0 ‡	2nd speed
3rd speed 1/min: 1510 Charge press. hPa: 1000 Del.quantity cm3/: 0,019	5,0	Automatic starting fuel delivery: 1st speed 1/min: 250
4th speed 1/min: 1470 Charge press. hPa: 1000 Del.quantity cm3/: 15,0	55,0	Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 90,0
5th speed 1/min: 1360 Charge press. hPa: 1000	Ī	2nd speed 1/min: 350 Charge press. hPa: -

Del.quantity cm3/: max. 1000H : 90,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : KF mm : K-OT
MS mm : 1,0...1,4
SVS max. mm : 2,3

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 3,9 N18 Test sheet Edition : 16.05.89

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R301

Type number : 0 460 424 041 Customer Part-No. : 3 911 241

Customer-specific information

Customer : CDC

Engine : 4 BTA 3,9

Power k: 88 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina |

bar: 250...253 pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm : 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke

mm: 1,25 mm: +-0,02(0,06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel:

Speed 1/min: 1100 Charge press. hPa: 1100 Setting value mm: 0,8...1,2

KSB solenoid-operated valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 850 Charge press. Pa: 1100 Setting value bar: 4,5...5,1

KSB solenoid-operated valve volt: 24.0

Full-load del. with charge press.:

Speed 1/min: 850 Charge press. hPa: 1100 Del.quantity cm3/ 1000H.: 84,5...85,5

KSB solenoid-operated volt: 24,0 valve cm3/:4,0Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

 $1/\min : 550$ Speed

Del.quantity cm3/ 1000H.: 56,5...57,5

Low-idle speed regulation:

Speed 1/min: 375 Speed Charge press. hPa: -Del.quantity cm3/ 1000H.: 9,0...13,0

KSB solenoid-operated volt: 24,0 valve cm3/: 5,5 Dispersion 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340 Charge press. hPa: 1100

Del.quantity cm3/ 1000H: 62,0...68,0

KSB solenoid-operated valve volt: 24,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 70,0 mind

KSB solenoid-operated	+	
valve volt: 24,0	+	Overflow quantity at overflow valve:
1,000, 2,70	1	The state of the s
Inspection-pump test specifications	1	1st speed 1/min: 550
Test specifications in parentheses	1	Charge press. hPa: -
Too spect reactories in participate	1	KSB solenoid-operated
Timing-device characteristic:	Ţ	valve volt: 24,0
Thining device character iscie.	1	Oveflow : 4183
	I	quantity cm3/10s: (2698)
1st speed 1/min: 400	Ι	2nd speed 1/min: 1250
	T	
Charge press. hPa: - TD travel mm: 2,53,5	T	Charge press. hPa: 1100
	T	KSB solenoid-operated
mm: -	T	valve volt: 24,0
KSB solenoid-operated	Ť	Overflow : 55138
valve volt: -	Ť	quantity cm3/10s: (40153)
2nd speed 1/min: 1000	T	No. 1. de marco de la constanta de la constant
Charge press. hPa: 1100	†	Delivery-quant. and breakaway char.:
TD travel mm: 0,21,0	†	A 1 1 A 1 200
mm: (0,01,3)	†	1st speed 1/min: 700
KSB solenoid-operated	†	Charge-air pressure-setting
_valvevolt: 24,0	+	point hPa: 600
3rd speed 1/min: 1100	+	LDA stroke mm: 6,5
Charge press. hPa: 1100	+	KSB solenoid-operated
TD travel mm: 0,81,2	+	valve volt: 24,0
mm: (U, 31,7)	+	Del.quantity cm3/: 73,574,5
KSB solenoid-operated	+	1000H.: (70,078,0)
valve volt: 24,0	+	2nd speed 1/min: 1550
4th speed 1/min: 1250	+	Charge press. hPa: 1100
Charge press. hPa: 1100	+	KSB solenoid-operated
TD travel mm: 1,42,2	+	valve volt: 24,0
mm: (1,12,5)	+	Del.quantity cm3/: 0.03.0
KSB solenoid-operated	+	Del.quantity cm3/: 0,03,0 1000H.: -
valve volt: 24,0	1	3rd speed 1/min: 1480
	1	Charge press. hPa: 1100
Supply-pump pressure characteristic:	1	KSB solenoid-operated
complete purification of the control	1	valve volt: 24,0
1st speed 1/min: 550	1	Del quantity cm3/: 0.0 15.0
Charge press. hPa: 1100	1	Del.quantity cm3/: 0,015,0 1000H.: -
Supply-pump	1	4th speed 1/min: 1430
pressure bar: 2,93,5	1	Charge press. hPa: 1100
KSB solenoid-operated	1	KSB solenoid-operated
valve volt: 24,0	Ι	valve volt: 24,0
2nd speed 1/min: 850	1	Del.quantity cm3/: 15,055,0
Charge press. hPa: 1100	Ι	1000H.: -
Supply-pump	I	5th speed 1/min: 1340
pressure bar: 4,55,1	Ι	Charge press. hPa: 1100
	T	
KSB solenoid-operated	T	KSB solenoid-operated
valve volt: 24,0	T	valve volt: 24,0
3rd speed 1/min: 1100	T	Del.quantity cm3/: 62,068,0
Charge press. hPa: 1100	†	1000H.: (59,071,0)
Supply-pump	†	6th speed 1/min: 1250
pressure bar: 5,56,1	†	Charge press. hPa: 1100
KSB solenoid-operated	†	KSB solenoid-operated
valve volt: 24,0	†	valve volt: 24,0
4th speed 1/min: 1250	+	Del.quantity_cm3/: 79,082,0
Charge press. hPa: 1100	+	1000H.: (77,583,5)
Supply-pump	+	7th speed 1/min: 1100
pressure bar: 6,16,7	+	Charge press. hPa: 1100
KSB solenoid-operated	+	KSB solenoid operated
valve volt: 24,0	+	valve volt: 24,0

Del.quantity cm3/: 81,5...84,5 1000H.: (79,5...86,5) 1/min: 850 8th speed Charge press. hPa: 1100 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 84,5...85,5 1000H: (82,0...88,0) 1/min: 700 9th speed Charge press. hPa: 600 KSB solenoid-operated valve volt: 24,0
Del.quantity cm3/: 73,5...74,5
1000H: (70,0...78,0)
10th speed 1/min: 550 Charge press. hPa: 1100 KSB solenoid-operated volt: 24,0 Del.quantity cm3/: 97,0...105,0 1000H: -1/min: 550 11th speed Charge press. hPa: -KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 56,5...57,5 1000H: (53,0...61,0) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1250 Del.quantity cm3/: 0..3 1000H .: -Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: max. Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated volt: 24,0 valve Del.quantity cm3/: 9,0...13,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed KSB solenoid-operated volt: 24,0 valve Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 240

KSB solenoid-operated volt: 24,0 valve cm3/: Del.quantity 1000H: 80,0 ind. 2nd speed 1/min: 360 Charge press. hPa: KSB solenoid-operated volt: 24,0 valve Del.quantity cm3/: -max. 1000H: 80,0 max. Shutoff electromagnet: Cut-in min. voltage Rated voltage : 24,0 Mounting and assembly dimensions: Designation mm KF mm : 0,8...1,2 MS mm : 3,2 SVS max. m mm : 18,8...20,8 XK mm : 12,4...15,8 change.

Operate control lever after each manifold-pressure compensator pressure

Correction at adjusting nut (46)

Tractive electromagnet.

Charge press. hPa: -

Note inst. in remarks column

: CUM 3,9 N16 Test sheet Edition : 16.05.89

replaces

Calibrating oil : ISO 4113

: VE 4/12F1250 R301 Injection pump : 0 460 424 041 Type number

Customer Part-No.: 3 914 886

Customer-specific information

Customer : CDC

Engine : 4 BTA 3,9

Power k: 88 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250...253 pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter_: 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm : 0.3

(from BDC): +0.02(0.04)

Start of delivery block mm: 1,25 Piston stroke

mn: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses Timing-device travel:

1/min: 1100 Speed Charge press. hPa: 1100 Setting value mm: 0,8...1,2 KSB solenoid-operated

valve volt: 12,0

Supply-pump pressure:

1/min: 850 Speed Charge press. hPa: 1100 Setting value bar: 4,5...5,1 KSB solenoid-operated

valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 850 Charge press. hPa: 1100 Del.quantity cm3/ 1000H.: 84,5...85,5

KSB solenoid-operated volt : 12,0 valve cm3/:4,0Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

1/min : 550 Speed

Del.quantity cm3/ 1000H.: 56,5...57,5

Low-idle speed regulation:

Speed 1/min: 375 Charge press. hPa: -

Del.quantity cm3/ 1000H.: 9,0...13,0

KSB solenoid-operated volt: 12,0 valve cm3/: 5,5 Dispersion 1000け.: (7,0)

Full-load speed regulation:

1/min: 1340 Speed Charge press. hPa: 1100 Del.quantity cm3/

1000H: 62,0...68,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 70,0 mind

Inspection pump test specifications Test specifications in parentheses

	•
	+ KSB solenoid-operated
Timing-device characteristic:	+ valve volt: 12,0
· ·······,g cov · ·································	+ Oveflow : 4183
	quantity cm3/10s: (2698)
Antoniana Almini (00	
1st speed 1/min: 400	+ 2nd speed 1/min: 1250
Charge press. hPa: -	Charge press. hPa: 1100
TD travel mm: 2,53,5	+ KSB solenoid-operated
mm: -	+ valve volt: 12,0
KSB solenoid-operated	- Overflow : 55138
valve volt: -	quantity cm3/10s: (40153)
	T quality this (40155)
2nd speed 1/min: 1000	†
Charge press. hPa: 1100	Delivery-quant. and breakaway char.
TD travel mm: 0,21,0	†
ma: (0,01,3)	+ 1st speed 1/min: 700
KSB solenoid-operated	+ Charge-air pressure-setting
valve volt: 12,0	point hPa: 600
3rd speed 1/min: 1100	LDA stroke mm: 6,5
Change above 1/11/11, 1100	
Charge press. hPa: 1100	KSB solenoid-operated
TD travel mm: 0,81,2	valve volt: <u>12,0</u>
mm: (0,31,7)	Del.quantity cm3/: 73,574,5
KSB solenoid-operated	1000H.: (70,078,0)
valve volt: 12,0	+ 2nd speed 1/min: 1550
4th speed 1/min: 1250	Charge press. hPa: 1100
Charge press. hPa: 1100	KSB solenoid-operated
TD travel mm: 1,42,2	valve volt: 12,0
mn: (1,12,5)	T Valve VOCC. 12,0
SIBILIC (1/1006)	Del.quantity cm3/: 0,03,0 1000H.: -
KSB solenoid-operated	
valve volt: 12,0	+ 3rd speed 1/min: 1480
•	Charge press. hPa: 1100
Supply-pump pressure characteristic:	KSB solenoid-operated
	+ valve volt: 12,0
1st speed 1/min: 550	Del.quantity cm3/: 0,015,0
Charge press. hPa: 1100	1000H.: -
Supply-pump	4th speed 1/min: 1430
pressure bar: 2,93,5	Charge press. hPa: 1100
KSB solenoid-operated	
Not solenoral operated	KSB solenoid-operated
valve volt: 12,0	valve volt: 12,0
2nd speed 1/min: 850	Del.quantity cm3/: 15,055,0 1000H.: -
Charge press. hPa: 1100	†
Supply-pump -	+ 5th speed 1/min: 1340
pressure bar: 4,55,1	+ Charge press. hPa: 1100
KSB solenoid-operated -	- KSB solenoid-operated
valve volt: 12,0	valve volt: 12,0
3rd speed 1/min: 1100	Del quantity cm3/: 62.0 .68.0
Charge press. hPa: 1100	Del.quantity cm3/: 62,068,0 1000H.: (59,071,0)
	6th speed 1/min: 1250
Supply-pump -	
pressure bar: 5,56,1	Charge press. hPa: 1100
KSB solenoid-operated -	KSB solenoid-operated
valve volt: 12,0	to valve volt: 12,0
4th speed	<pre>bel.quantity cm3/: 79,082,0</pre>
Charge press. hPa: 1100 -	Del.quantity cm3/: 79,082,0 1000H.: (77,583,5)
Supply-pump -	7th speed 1/min: 1100
pressure bar: 6,16,7	Charge press. hPa: 1100
KSB solenoid-operated -	KSB solenoid-operated
valve volt: 12,0	valve volt: 12,0
1000. 12/0	Del.quantity cm3/: 81,584,5
Wanflat auantity at avantlas value.	1000 - 70 E 94 E
Overflow quantity at overflow valve: -	1000H.: (79,586,5)
1ab amond Almin CCO	8th speed 1/min: 850
lst speed 1/min: 550	Charge press. hPa: 1100
Thanse nrece hPa: -	<u>_</u>

KSB solenoid-operated volt: 12,0 cm3/: 84,5...85,5 1000H: (82,0...88,0) 1/min: 700 valve Del.quantity 9th speed Charge press. hPa: 600 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 73,5...74,5 1000H: (70,0...78,0) 10th speed 1/min: 550 Charge press. hPa: 1100 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 97,0...105,0 1000H: -1/min: 550 11th speed Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 56,5...57,5 1000H: (53,0...61,0) Zero delivery (stop): Mech. shutoff: 1/min: 1250 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000н.: max. Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 9,0...13,0 1000H.: (6,0...16,0) 2nd speed 1/min: 450 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1/min: 240 1st speed Charge press. hPa: -Del.quantity cm3/: -1000H: 80,0 ind. 1/min: 360 2nd speed Charge press. hPa: -

Del.quantity cm3/: max. 1000H: 80,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : KF mm : MS mm : 0,8...1,2
SVS max. mm : 3,2
XK mm : 18,8...20,8
XL mm : 12,4...15,8

Remarks:

Operate control lever after each manifold—pressure compensator pressure change.

Correction at adjusting nut (46)

Tractive electromagnet.

MO7

Note inst. in remarks column

: CUM 3,9 N17 Test sheet : 16.05.89 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/12F1250 R301 Injection pump

: 0 460 424 041 Type number

Customer Part-No.: 3 914 887

Customer-specific information

Customer : CDC

Engine : 4 BTA 3,9

k: 88 Power 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2

mm: 840 x Length

Start of delivery

Prestroke mm : 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke

mm: 1,25 mm: +0,02(0,06)

Outlet |

Injection pump setting values Test specifications in parentheses Timing-device travel:

1/min: 1100 Charge press. hPa: 1100 Setting value mm: 0,8...1,2

KSB solenoid-operated volt: 24,0 valve

Supply-pump pressure:

1/min: 850 Speed Charge press. hPa: 1100 Setting value bar: 4,5...5,1

KSB solenoid-operated valve volt: 24.0

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1100

Del.quantity cm3/ 1000H.: 84,5...85,5

KSB solenoid-operated volt: 24,0 valve cm3/:4,0Dispersion 1000H: (4,5)

Full-load del. w/out charge press.:

1/min : 550 Speed

Del.quantity cm3/ 1000H.: 56,5...57,5

Low-idle speed regulation:

1/min: 375 Speed Charge press. hPa: -Del.quantity cm3/ 1000H.: 9,0...13,0

KSB solenoid-operated volt: 24,0 valve cm3/: 5,5Dispersion 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340 Charge press. hPa: 1100

Del.quantity cm3/ 1000H: 62,0...68,0

KSB solenoid-operated valve volt: 24,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 70,0 mind

KSB solenoid-operated	+
valve volt: 24,0	Overflow quantity at overflow valve
•	+
Inspection pump test specifications	↓ 1st speed 1/min: 550
Test specifications in parentheses	+ Charge press. hPa: -
·	+ KSB solenoid-operated
Timing-device characteristic:	+ valve volt: 24,0
	+ Oveflow : 4183
	quantity cm3/10s: (2698)
1st speed 1/min: 400	2nd speed 1/min: 1250
Charge press. hPa: -	Charge press. hPa: 1100
TD travel mm: 2,53,5	KSB solenoid-operated
mm: —	valve volt: 24,0
KSB solenoid-operated	Overflow : 55138
valve volt: -	quantity cm3/10s: (40153)
2nd speed 1/min: 1000	quarter ty this 100: (40:::155)
Charge press. hPa: 1100	Delivery-quant. and breakaway char.
Th travel mm. 0.2 10	T Decree y quarter aim breakaway chai.
TD travel mm: 0,21,0 mm: (0,01,3)	1st speed 1/min: 700
min. (0/0//3/	Change-air processes setting
KSB solenoid-operated	Charge-air pressure-setting
valve volt: 24,0	+ point hPa: 600
3rd speed 1/min: 1100	+ LDA stroke mm: 6,5
Charge press. hPa: 1100	KSB solenoid-operated
TD travel mm: 0,81,2	valve volt: 24,0
TRII: (U, 3(, 1)	Del.quantity cm3/: 73,574,5
KSB solenoid-operated	1000H.: (70,078,0)
valve volt: 24,0	2nd speed 1/min: 1550
4th speed 1/min: 1250	Charge press. hPa: 1100
Charge press. hPa: 1100	+ KSB solenoid-operated
TD travel mm: 1,42,2	t valve volt: 24,0
mm: (1,12,5)	Del.quantity cm3/: 0,03,0 1000H.: -
KSB solenoid-operated	† 1000H.: -
valve volt: 24,0	3rd speed 1/min: 1480
	Charge press. hPa: 1100
Supply-pump pressure characteristic:	KSB solenoid-operated
	+ valve volt: 24,0
1st speed 1/min: 550	Del.quantity cm3/: 0,015,0 1000H.: -
Charge press. hPa: 1100	+ 1000H.: -
Supply-pump -	+ 4th speed 1/min: 1430
pressure bar: 2,93,5	+ Charge press. hPa: 1100
pressure bar: 2,93,5 KSB solenoid-operated	- KSB solenoid-operated
valve volt: 24,0	valve volt: 24,0
2nd speed 1/min: 850	Del.quantity_cm3/: 15,055,0
Charge press. hPa: 1100	+ 1000H.: -
Supply-pump -	+ 5th speed 1/min: 1340
pressure bar: 4,55,1	- Charge press. hPa: 1100
KSB solenoid-operated	KSB solenoid-operated
valve volt: 24,0	lack volt: 24,0
3rd speed 1/min: 1100	Del.quantity cm3/: 62,068,0
Charge press. hPa: 1100	1000H.: (59,071,0)
Supply-pump -	6th speed 1/min: 1250
pressure bar: 5,56,1	- Charge press. hPa: 1100
KSB solenoid-operated	KSB solenoid-operated
valve volt: 24,0	valve volt: 24,0
4th speed 1/min: 1250	Del.quantity cm3/: 79,082,0
Charge press. hPa: 1100	1000H.: (77,583,5)
Supply-pump -	7th speed 1/min: 1100
pressure bar: 6,16,7	Charge press. hPa: 1100
KSB solenoid-operated	KSB solenoid-operated
valve volt: 24,0	valve volt: 24,0
1410	1 1000 1000 57/0

Del.quantity cm3/: 81,5...84,5 1000H.: (79,5...86,5) 1/min: 850 8th speed Charge press. hPa: 1100 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 84,5...85,5 1000H: (82,0...88,0) 1/min: 700 9th speed Charge press. hPa: 600 KSB solenoid-operated volt: 24,0 cm3/: 73,5...74,5 Del.quantity 1000H: (70,0...78,0) 10th speed 1/min: 550 hPa: 1100 Charge press. KSB solenoid-operated volt: 24,0 valve Del.quantity cm3/: 97,0...105,0 1000H: -1/min: 550 11th speed Charge press. hPa: KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 56,5...57,5 1000H: (53,0...61,0) Zero delivery (stop): Mech. shutoff: 1/min: 1250 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed Del.quantity cms/: 0, 1000H.: -ELAB volt: cm3/: 0,0...3,0Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated volt: 24,0 valve Del.quantity cm3/: 9,0...13,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed KSB solenoid-operated volt: 24,0 Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 240 Charge press. hPa: -

KSB solenoid-operated volt: 24,0 valve Del.quantity cm3/: -1000H: 80,0 ind. 2nd speed 1/min: 360 Charge press. hPa: KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: - max. 1000H: 80,0 Shutoff electromagnet: Cut-in min. voltage : 20,0 Rated voltage : 24,0 Mounting and assembly dimensions: Designation Κ mm KF mm MS : 0,8...1,2 mm : 3,2 SVS max. mm mm mm

: 18,8...20,8 XK : 12,4...15,8 Operate control lever after each

Correction at adjusting nut (46)

manifold-pressure compensator pressure change.

Tractive electromagnet.

Note inst. in remarks column

: CUM 3,9 N14 Test sheet Edition : 16.05.89

replaces

Calibrating oil : ISO 4113

: VE 4/12F1250 R301 Injection pump

Type number : 0 460 424 041 Customer Part-No. : 3 915 287

Customer-specific information

Customer

: CDC

Engine

: 4 BTA 3,9

k: 88 Power 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm : 0,3

(from BDC): $\pm 0.02(0.04)$

Start of delivery block mm: 1,25 Piston stroke

mm: +0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses Timing-device travel:

Speed 1/min: 1100 Charge press. hPa: 1100 Setting value mm: 0,8...1,2

KSB solenoid-operated volt: 12,0 valve

Supply-pump pressure:

1/min: 850 Speed Charge press. hPa: 1100 Setting value bar: 4,5...5,1 KSB solenoid-operated

valve volt: 12.0

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1100 Del.quantity cm3/ 1000H.: 84,5...85,5

KSB solenoid-operated volt: 12,0 valve Dispersion cm3/:4,01000H: (4,5)

Full-load del. w/out charge press.:

1/min: 550 Speed

Del.quantity cm3/

1000H.: 56,5...57,5

Low-idle speed regulation:

1/min: 375 Speed Charge press. hPa: -Del.quantity cm3/ 1000H.: 9,0...13,0

KSB solenoid-operated volt: 12,0 valve cm3/: 5,5 1000H.: (7,0) Dispersion

Full-load speed regulation:

Speed 1/min: 1340 Charge press. hPa: 1100 Del.quantity cm3/ 1000H: 62,0...68,0

Start:

1/min: 100 Charge press. hPa: -Del.quantity cm3/1000H.: 70,0 mind i

Inspection pump test specifications Test specifications in parentheses

Tining design of an about this	+	KSB solenoid-operated
Timing-device characteristic:	İ	valve volt: 12,0 Oveflow : 4183
	Ţ	quantity cm3/10s: (2698)
1st speed 1/min: 400	+	2nd speed 1/min: 1250
Charge press. hPa: -	+	Charge press. hPa: 1100
TD travel mm: 2,53,5	†	KSB solenoid-operated
mm: KSB solenoid-operated	Ī	valve volt: 12,0 Overflow : 55138
valve volt: -	+	quantity cm3/10s: (40153)
2nd speed 1/min: 1000	+	
Charge press. hPa: 1100	+	Delivery-quant. and breakaway char.
TD travel mm: 0,21,0	†	1st speed 1/min: 700
mm: (0,01,3) KSB solenoid-operated	I	Charge-air pressure-setting
valve volt: 12,0	+	point hPa: 600
3rd speed 1/min: 1100	+	LDA stroke mm: 6,5
Charge press. hPa: 1100	+	KSB solenoid-operated
TD travel mm: 0,81,2	†	valve volt: 12,0
mm: (0,31,7) KSB solenoid-operated	Ī	Del.quantity cm3/: 73,574,5 1000H.: (70,078,0)
	Ţ	2nd speed 1/min: 1550
valve volt: 12,0 4th speed 1/min: 1250	+	Charge press. hPa: 1100
Charge press. hPa: 1100	+	KSB solenoid-operated
TD travel mm: 1,42,2	+	valve volt: 12,0
mm: (1,12,5)	İ	Del.quantity cm3/: 0,03,0 1000H.: -
KSB solenoid-operated valve volt: 12,0	I	3rd speed 1/min: 1480
vace: 12/0	1	Charge press. hPa: 1100
Supply-pump pressure characteristic:	+	KSB solenoid-operated
4	+	valve volt: 12,0
1st speed 1/min: 550	†	Del.quantity cm3/: 0,015,0 1000H.: -
Charge press. hPa: 1100 Supply-pump	Ī	4th speed 1/min: 1430
pressure bar: 2,93,5	Ţ	Charge press. hPa: 1100
KSB solenoid-operated	+	KSB solenoid-operated
valve volt: 12,0	+	valve volt: 12,0
2nd speed 1/min: 850	+	Del.quantity cm3/: 15,055,0 1000H.: -
Charge press. hPa: 1100	†	1000H.: -
Supply-pump pressure bar: 4,55,1	I	5th speed 1/min: 1340 Charge press. hPa: 1100
KSB solenoid-operated	1	KSB solenoid-operated
valve volt: 12,0	+	valve volt: 12,0
3rd speed 1/min: 1100	+	Del.quantity cm3/: 62,068,0 1000H.: (59,071,0)
Charge press. hPa: 1100	†	1000H.: (59,0/1,0)
Supply-pump pressure bar: 5,56,1	I	6th speed 1/min: 1250 Charge press. hPa: 1100
KSB solenoid-operated	1	KSB solenoid-operated
valve volt: 12,0	+	valve volt: 12.0
4th speed 1/min: 1250	+	Del.quantity cm3/: 79.082.0 1000H:: (77,583,5)
Charge press. hPa: 1100	†	1000H.: (77,583,5)
Supply-pump pressure bar: 6,16,7	İ	7th speed 1/min: 1100 Charge press. hPa: 1100
KSB solenoid-operated	I	KSB solenoid-operated
valve volt: 12,0	+	valve volt: 12,0
, in the second of the second	+	Del.quantity cm3/: 81,584,5 1000H.: (79,586,5)
Overflow quantity at overflow valve:	†	1000H.: (79,586,5)
1st speed 1/min: 550	İ	8th speed 1/min: 850 Charge press. hPa: 1100
Charge press. hPa: -	1	ondige press. III a. 1100
- ,	•	

KSB solenoid-operated volt: 12,0 cm3/: 84,5...85,5 1000H: (82,0...88,0) 1/min: 700 valve Del.quantity 9th speed Charge press. hPa: 600 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 73,5...74,5 1000H: (70,0...78,0) 10th speed 1/min: 550 Charge press. hPa: 1100 KSB solenoid operated volt: 12,0 valve Del.quantity cm3/: 97,0...105,0 1000H: -1/min: 550 11th speed Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 56,5...57,5 1000H: (53,0...61,0) Zero delivery (stop): Mech. shutoff: 1/min: 1250 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: max. Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 9,0...13,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed KSB solenoid-operated volt: 12,0 Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 240 Charge press. hPa: -Del.quantity cm3/: -1000H: 80,0 ind. 1/min: 360 2nd speed Charge press. hPa: -

M13

Del.quantity cm3/: - max. 1000H: 80,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : KF mm : MS mm : 0,8...1,2
SVS max. mm : 3,2
XK mm : 18,8...20,8
XL mm : 12,4...15,8

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 3,9 N15 Test sheet : 16.05.89 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R301

Type number : 0 460 424 041 Customer Part-No. : 3 915 427

Customer-specific information

Customer : CDC

: 4 BTA 3,9 Engine

Power k: 88 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +0,02(0,04)

Start of delivery block Piston stroke mm: 1,25

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses Timing-device travel:

1/min: 1100 Speed Charge press. hPa: 1100 Setting value mm: 0,8...1,2 KSB solenoid-operated

valve volt: 12,0

Supply-pump pressure:

1/min: 850 Speed Charge press. hPa: 1100 Setting value bar: 4,5...5,1 KSB solenoid-operated valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 850 Charge press. hPa: 1100 Del.quantity cm3/ 1000H.: 84,5...85,5

KSB solenoid-operated volt: 12,0 cm3/: 4,0 valve Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

Speed $1/\min : 550$

Del.quantity cm3/ 1000H.: 56,5...57,5

Low-idle speed regulation:

Speed 1/min: 375 Charge press. hPa: -Del.quantity cm3/ 1000H.: 9,0...13,0

KSB solenoid-operated volt: 12,0 valve cm3/: 5,5 Dispersion 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340 Charge press. hPa: 1100 Del.quantity cm3/ 1000H: 62,0...68,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

	+	KSB solenoid-operated
Timing-device characteristic:	+	valve volt: 12,0
	†	Oveflow : 4183
1at apped 1/min. /00	†	quantity cm3/10s: (2698)
1st speed 1/min: 400 Charge press. hPa: -	Ť	2nd speed 1/min: 1250
TD travel mm: 2,53,5	Ι	Charge press. hPa: 1100 KSB solenoid-operated
mm: -	1	valve volt: 12,0
KSB solenoid-operated	1	Overflow : 55138
valve volt: -	+	quantity cm3/10s: (40153)
2nd speed 1/min: 1000	+	
Charge press. hPa: 1100	+	Delivery-quant. and breakaway char.
TD travel mm: 0,21,0	+	4.1
mm: (0,01,3)	†	1st speed 1/min: 700
KSB solenoid-operated valve volt: 12,0	T	Charge-air pressure-setting point hPa: 600
3rd speed 1/min: 1100	Ι	LDA stroke mm: 6,5
Charge press. hPa: 1100	1	KSB solenoid-operated
TD travel mm: 0,81,2	1	valve volt: 12,0
mm: (0,31,7)	+	Del.quantity cm3/: 73,574,5
KSB solenoid-operated	+	Del.quantity cm3/: 73,574,5 1000H.: (70,078,0)
valve volt: 12,0	+	2nd speed 1/min: 1550
4th speed 1/min: 1250	+	Charge press. hPa: 1100
Charge press. hPa: 1100	†	KSB solenoid-operated
TD travel mm: 1,42,2 mm: (1,12,5)	Ī	valve volt: 12,0 Del.quantity cm3/: 0,03,0
KSB solenoid-operated	I	1000H.: -
valve volt: 12,0	1	3rd speed 1/min: 1480
7000 1270	+	Charge press. hPa: 1100
Supply-pump pressure characteristic:	+	KSB solenoid-operated
	+	valve volt: 12,0
1st speed 1/min: 550	+	Del.quantity cm3/: 0,015,0 1000H.: -
Charge press. hPa: 1100	†	1000H.: -
Supply-pump	†	4th speed 1/min: 1430
pressure bar: 2,93,5 KSB solenoid-operated	Ι	Charge press. hPa: 1100 KSB solenoid-operated
valve volt: 12,0	I	valve volt: 12.0
2nd speed 1/min: 850	1	valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: -
Charge press. hPa: 1100	+	1000H.: -
Supply-pump	+	5th speed 1/min: 1340
pressure bar: 4,55,1	+	Charge press. hPa: 1100
KSB solenoid-operated	†	KSB solenoid-operated
valve volt: 12.0	†	valve volt: 12,0
3rd speed 1/min: 1100 Charge press. hPa: 1100	Ī	Del.quantity cm3/: 62,068,0 1000H.: (59,071,0)
Supply-pump	1	6th speed 1/min: 1250
pressure bar: 5,56,1	+	Charge press. hPa: 1100
KSB solenoid-operated	+	KSB solenoid-operated
valve volt: 12,0	+	valve volt: 12,0
4th speed 1/min: 1250	+	Del.quantity cm3/: 79,082,0 1000H.: (77,583,5)
Charge press. hPa: 1100	+	1000H.: (77,583,5)
Supply-pump	†	7th speed 1/min: 1100
pressure bar: 6,16,7 KSB solenoid-operated	Ţ	Charge press. hPa: 1100
valve volt: 12,0	Ι	KSB solenoid-operated valve volt: 12,0
14C10 10CC. 12/U	1	Del.quantity cm3/: 81,584,5
Overflow quantity at overflow valve:	+	1000H.: (79,586,5)
The second district of the second sec	+	8th speed 1/min: 850
1st speed 1/min: 550	+	Charge press. hPa: 1100
Charge press. hPa: -	+	

KSB solenoid-operated volt: 12,0 valve cm3/: 84/5...85/5 1000H: (82/0...88/0) 1/min: 700 Del.quantity 9th speed hPa: 600 Charge press. KSB solenoid-operated volt: 12,0 valve cm3/: 73,5...74,5 Del.quantity 1000H: (70,0...78,0) 1/min: 550 hPa: 1100 10th speed Charge press. KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 97,0...105,0 1000H: -1/min: 550 11th speed Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 56,5...57,5 1000H: (53,0...61,0) Zero delivery (stop): Mech. shutoff: 1/min: 1250 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: Speed 1/min: 375 ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 9,0...13,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 240 Charge press. hPa: -Del.quantity cm3/: -1000H: 80,0 ind. 1/min: 360 2nd speed

Del.quantity cm3/: - max. 1000H: 80,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : KF mm : MS mm : 0,8...1,2
SVS max. mm : 3,2
XK mm : 18,8...20,8
XL mm : 12,4...15,8

Remarks:

Operate control lever after each manifold pressure compensator pressure change.

Correction at adjusting nut (46)

M16

Charge press. hPa: -

Note inst. in remarks column

Test sheet : CUM 3,9N11 : 17.05.89 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R301 Type number : 0 460 424 041

Customer Part-No. :

Customer-specific information

Customer

Engine

: 4 BTA 390 A

k: 88 Power 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina |

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mm : 0.3Prestroke

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1,25

mm: +-0.02(0.06)

Outlet : A

Injection-pump setting values Test specifications in parentheses Timing-device travel:

1/min: 1100 Speed Charge press. hPa: 1100 Setting value mm: 0,8...1,2

KSB solenoid-operated valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 850 Charge press. hPa: 1100 Setting value bar: 4,5...5,1 KSB solenoid-operated

valve volt: 12,0

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1100 Del.quantity cm3/ 1000H.: 84,5...85,5

KSB solenoid-operated volt: 12,0 valve cm3/:4,0Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

1/min : 550 Speed Del.quantity cm3/ 1000H.: 56,5...57,5

KSB solenoid-operated valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 375 Del.quantity cm3/ 1000H.: 9,0...13,0

KSB solenoid-operated volt: 12,0 valve cm3/: 5,5 1000H.: (7,0) Dispersion

Full-load speed regulation:

Speed 1/min: 1340 Charge press. hPa: 1100

Del.quantity cm3/ 1000H: 62,0...68,0

KSB solenoid-operated valve volt: 12,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 70,0

KSB solenoid-operated	+
	Overflow quantity at eventlow valves
valve volt: 12,0	† Overflow quantity at overflow valve:
	†
Inspection-pump test specifications	+ 1st speed 1/min: 550
	Change appear has been
Test specifications in parentheses	+ Charge press. hPa: -
	+ KSB solenoid-operated
Timina davisa abancabanishia.	tob objection a operated
Timing-device characteristic:	+ valve volt: 12,0 + Oveflow : 4183
	+ Oveflow : 4183
	+ quantity cm3/10s: (2698)
4	T qualitity ulb/105. (2070)
1st speed 1/min: 400	+ 2nd speed 1/min: 1250
Charge press. hPa: -	+ Charge press. hPa: 1100
The American Control of The The The The The The The The The The	Charge press. That I too
TD travel mm: 2,53,5	+ KSB solenoid-operated
mm: -	+ valve volt: 12,0 + Overflow : 55138
	0.4mfla FE 170
KSB solenoid-operated	+ Overflow : 55138
valve volt: -	quantity cm3/10s: (40153)
2nd speed 1/min: 1000	
	T
Charge press. hPa: 1100	<pre>+ Delivery-quant. and breakaway char.:</pre>
TD travel mm: 0,21,0_	1
······ (0 0 4 7)	1-h 1/ 700
mm: (0,01,3)	+ 1st speed 1/min: 700
KSB solenoid-operated	+ Charge-air pressure-setting
valve volt: 12,0	
valve volt: 12,0	
3rd speed 1/min: 1100	+ KSB solenoid-operated
Charge press. hPa: 1100	+ valve volt: 12,0
The transfer of the state of th	7 Valve Vote. 12,0
TD travel mm: 0,81,2	+ Del.quantity cm3/: 73,574,5
mm: $(0,31,7)$	+ 1000H.: (70,078,0)
	2nd anard 4/min 4550
KSB solenoid-operated	+ 2nd speed 1/min: 1550
valve volt: 12,0	† Charge press. hPa: 1100
4th speed 1/min: 1250	L VSD colonoid-connected
4th speed Militi. 120	+ KSB solenoid-operated
Charge press. hPa: 1100	+ valve volt: 12,0
TD travel mm: 1,42,2	L Del quantity cm3/. 00 30
10 travet 11911. 174272	4000H (0.0.3.0)
mm: (1,12,5)	Del.quantity cm3/: 0,03,0 1000H.: (0,03,0)
KSB solenoid-operated	+ 3rd speed 1/min: 1480
	Change phase hose 1100
valve volt: 12,0	+ Charge press. hPa: 1100
	+ KSB solenoid-operated
Supply-pump pressure characteristic:	+ valve volt: 12,0
supply pump pressure character iscic.	
	+ Del.quantity cm3/: 0,015,0
1st speed 1/min: 550	1000H.: (0,015,0)
	166 1 4/ 4/70
Charge press. hPa: 1100	+ 4th speed 1/min: 1430
Supply-pump	+ Charge press. hPa: 1100
procesing hans 20 75	
pressure bar: 2,93,5	+ KSB solenoid-operated
KSB solenoid-operated	+ valve volt: 12,0
valve volt: 12,0	+ Del.quantity cm3/: 15,055,0
	4000H 44E 0 FE 0
2nd speed 1/min: 850	1000H.: (15,055,0)
Charge press. hPa: 1100	+ 5th speed 1/min: 1340
	Change proce box 1100
Supply-pump	+ Charge press. hPa: 1100
pressure bar: 4,55,1	+ KSB solenoid-operated
KSB solenoid-operated	+ valve volt: 12,0
walter that operated	No. 1 minutify 27/2 (2.0 /0.0
valve voit: 12,0	+ Del.quantity cm3/: 62,068,0
3rd speed 1/min: 1100	1000H.: (59,071,0)
	+ 6th speed 1/min: 1250
	T OUT SPECU 1/18111. 1230
Supply-pump	+ Charge press. hPa: 1100
pressure bar: 5,56,1	+ KSB solenoid-operated
VCD polonoid appropria	
KSB solenoid operated	+ valve volt: 12,0
valve volt: 12,0	+ Del.quantity cm3/: 79.082.0
4th speed 1/min: 1250	Del.quantity cm3/: 79,082,0 1000H.: (77,583,5)
TUI SPECU IMITEL LAND	ונילטטוויי לווילטטו
Charge press. hPa: 1100	+ 7th speed 1/min: 1100
Supply-pump	+ Charge press. hPa: 1100
management bear 64 67	
pressure bar: 6,16,7	+ KSB solenoid-operated
KSB solenoid-operated	+ valve volt: 12,0
vaive volt: 12,0	1
AMCAG AMCCO 1570	T

Del.quantity cm3/: 81,5...84,5 1000H.: (79,5...86,5) 8th speed 1/min: 850 Charge press. hPa: 1100 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 84,5...85,5 1000H: (82,0...88,0) 1/min: 700 9th speed Charge press. hPa: 600 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 73,5...74,5 1000H: (70,0...78,0) 1/min: 550 10th speed Charge press. hPa: 1100 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 97,0...105,0 1000H: -11th speed 1/min: 550 Charge press. hPa: -KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 56,5...57,5 **1000**H: (53,0...61,0) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1250 Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity_cm3/: 0,0...3,0 1000H.: max. Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 9,0...13,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 0,0...4,0 1000H.: (0,0...4,0) Automatic starting fuel delivery: 1/min: 240 1st speed KSB solenoid-operated

volt: 12,0

Del.quantity cm3/: -1000H: 80,0 ind. 2nd speed 1/min: 360 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: - max. 1000H: 80,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage : 12,0 Rated voltage Mounting and assembly dimensions: Designation mm : 0,8...1,2 MS mm : 3,2 : 18,8...20,8 SVS max. mm XK mm

Remarks:

XL

Correction at adjusting nut (46)

: 12,4...15,8

M19

valve

Note inst. in remarks column

Test sheet : HEP 3,7 A : 08.05.89 Edition

replaces

: ISO 4113 Calibrating oil

: VE 4/12F1400 R314 Injection pump

: 0 460 424 044 Type number

Customer-specific information Customer : HERCULES

Engine : DT 3,7 L

Power k: 77 Speed 1/mi: 2800

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm : 0.3

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection pump setting values Test specifications in parentheses

Timing device travel:

Speed 1/min: 900 Charge press. hPa: 1000 Setting value mm: 1,6...2,0

Supply-pump pressure:

1/min: 900 Speed Charge press. hPa: 1000 Setting value bar: 4,1...4,7

Full-load del. with charge press.:

1/min: 900 Speed Charge press. hPa: 1000

cm3/:4,0Dispersion

1000H : 4,5

Full-load del. w/out charge press.:

1/min : 500 Speed

Del.quantity cm3/

1000H.: 37,0...38,0

Low-idle speed regulation:

1/min: 250 Speed Charge press. hPa: -Del.quantity cm3/ 1000H.: 2,0...4,0

Full-load speed regulation:

1/min: 1480 Speed Charge press. hPa: 1000

Deliquantity cm3/

1000H: 52,0...58,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 50,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750 Charge press. hPa: 1000 TD travel

mm: 0,6...1,4 mm: (0,3...1,7) 1/min: 900

2nd speed Charge press. hPa: 1000

mm: 1,6...2,0 mm: (1,1...2,5) TD travel

1/min: 1250 3rd speed

Charge press. hPa: 1000 TD travel mm: 2,73,5 mm: (2,43,8)	+ Del.quantity cm3/: 69,572,5 1000H.: (67,574,5) 8th speed 1/min: 900 Charge press. hPa: 1000
Supply-pump pressure characteristic:	Del.quantity cm3/: 73,574,5 1000H: (71,077,0)
1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump pressure bar: 2,53,1 2nd speed 1/min: 900 Charge press. hPa: 1000 Supply-pump pressure bar: 4,14,7 3rd speed 1/min: 1250 Charge press. hPa: 1000 Supply-pump pressure bar: 5,56,1	9th speed 1/min: 700 Charge press. hPa: 400 Del.quantity cm3/: 66,567,5 1000H: (63,071,0) 10th speed 1/min: 500 Charge press. hPa: 1000 Del.quantity cm3/: 79,087,0 1000H: - 11th speed 1/min: 500 Charge press. hPa: - Del.quantity cm3/: 37,038,0 1000H: (33,541,5)
Overflow quantity at overflow valve:	Zero delivery (stop):
1st speed 1/min: 500 Charge press. hPa: -	Mech. shutoff:
Oveflow: 4183 quantity cm3/10s: (2698) 2nd speed: 1/min: 1400	Speed 1/min: 1400 Del.quantity cm3/: 03 1000H.: -
Charge press. hPa: 1000 Overflow : 55138 quantity cm3/10s: (40153)	Electr. shutoff:
Delivery—quant. and breakaway char.: 1st speed 1/min: 700	- Speed 1/min: 250 - ELAB volt: - - Del.quantity cm3/: 0,03,0 - max. 1000H.: -
Charge-air pressure-setting point hPa: 400	Idle delivery:
LDA stroke mm: 6,2 Del.quantity cm3/: 66,567,5 1000H.: (63,071,0) 2nd speed 1/min: 1600	1st speed 1/min: 250 Del.quantity cm3/: 2,04,0 1000H.: (0,06,0)
Charge press. hPa: 1000 Del.quantity cm3/: 0,03,0 1000H.: -	Automatic starting fuel delivery:
3rd speed 1/min: 1580 Charge press. hPa: 1000 Del.quantity cm3/: 0,015,0 1000H.: -	1st speed 1/min: 130 Del.quantity cm3/: - ind. 1000H: 50,0
4th speed 1/min: 1540 Charge press. hPa: 1000 Del.quantity cm3/: 15,055,0 1000H.: -	2nd speed 1/min: 250 Del.quantity cm3/: - max. 1000H: 30,0
5th speed 1/min: 1480 Charge press. hPa: 1000	Shutoff electromagnet:
Del.quantity cm3/: 52,058,0 1000H.: (49,061,0) 6th speed 1/min: 1400	Cut-in : 10,0
Charge press. hPa: 1000 Del.quantity cm3/: 66,069,0 1000H.: (64,570,5)	Mounting and assembly dimensions:
7th speed 1/min: 1100 Charge press. hPa: 1000	Designation K mm : -

KF mm : 5,0...5,4 MS mm : 1,0...1,4 SVS max. mm : 2,7 XK mm : 18,8...20,8 XL mm : 11,8...15,2

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 3,9 N12 Test sheet : 12.05.89 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/12F1250 R226-9 Injection pump

: 0 460 424 048 Type number

Customer—specific information

Customer : CDC

: 4 BT Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina |

bar: 250...253 pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

mn : 0,3Prestroke

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1,80

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing device travel:

1/min: 900 Speed

Setting value mm: 2,0...2,4

Supply-pump pressure:

1/min: 900 Speed

Setting value bar: 4,6...5,2

Full-load del. w/out charge press.:

1/min : 1100 Speed

Del.quantity cm3/ 1000H.: 60,5...61,5

Dispersion cm3/: 4,01000H.: (4,5)

Low-idle speed regulation:

1/min: 335 Speed

Del.quantity cm3/ 1000H.: 9,0...11,0

Full-load speed regulation:

1/min: 1310 Speed

Del.quantity cm3/ 1000H: 42,0...48,0

Start:

1/min: 100 Speed

Del.quantity cm3/1000H.: 45,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750

mm: 0,9...1,7 mm: (0,6...2,0) TD travel

2nd speed 1/min: 900

mm: 2,0...2,4 mm: (1,5...2,9) TD travel

1/min: 1100 3rd speed

TD travel

mm: 2,9...3,7 mm: (2,6...4,0)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,7...3,3 1/min: 750 pressure

2nd speed

Supply-pump

bar: 3,9...4,5 pressure

1/min: 900 3rd speed

Supply-pump

bar: 4,6...5,2 1/min: 1100 pressure

4th speed

Supply-pump bar: 5,4...6,0 pressure Overflow quantity at overflow valve: 1st speed 1/min: 500 Oveflow : 41...83 quantity cm3/10s: (26...98) 1/min: 1250 2nd speed : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1380 2nd speed Del.quantity cm3/: 0,0...15,0 1000H.: -3rd speed 1/min: 1340 Del.quantity cm3/: 15,0...55,0 1000H.: -4th speed 1/min: 1310 Del.quantity cm3/: 42.0...48.0 1000H.: (39,0...51,0) 5th speed 1/min: 1250 Del.quantity cm3/: 59,0...62,0 1000H.: (57,5...63,5) 1/min: 1100 6th speed Del.quantity cm3/: 60,5...61,5 1000H.: (58,0...64,0) 7th speed 1/min: 750 Del.quantity cm3/: 60,5...64,5 1000H.: (58,5...66,5) 8th speed 1/min: 500 Del.quantity cm3/: 56,0...66,0 1000H: (55,0...67,0) Zero delivery (stop): Mech. shutoff: 1/min: 1250 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 335 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 335
Del.quantity cm3/: 9,0...11,0
1000H.: (5,0...15,0)
2nd speed 1/min: 500

Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1/min: 130 1st speed Del.quantity cm3/: ind. 1000H: 45,0 1/min: 300 2nd speed Del.quantity cm3/: -max. 1000H: 70,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage : 12,0 Rated voltage Mounting and assembly dimensions: Designation mm KF : 5,0...5,4 mm MS : 0,8...1,2 mm SVS max. mm : 4,7 mm : 18,8...20,8 XK XŁ mm : 11,8...14,9 Remarks:

Note inst. in remarks column

Test sheet : HEP 3,7 B : 09.05.89 Edition

replaces

: ISO 4113 Calibrating oil

: VE 4/12F1400 R314-1 Injection pump

: 0 460 424 049 Type number

Customer-specific information : HERCULES Customer

: DT - 3,7 L Engine

k: 91 Power 1/mi: 2800 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery

Prestroke mm : 0,3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel:

1/min: 900 Speed Charge press. hPa: 1000 Setting value mm: 1,7...2,1 Supply-pump pressure:

1/min: 900 Charge press. hPa: 1000 Setting value bar: 3,7...4,3

Full-load del. with charge press.:

1/min: 900 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 79,0...80,0

cm3/: 4,0 Dispersion 1000H : 4,5

Full-load del. w/out charge press.:

 $1/\min : 500$

Del.quantity cm3/ 1000H.: 38,5...39,5

Low-idle speed regulation:

Speed 1/min: 250 Charge press. hPa: -Del.quantity cm3/ 1000H.: 7,5...9,5

Full-load speed regulation:

Speed 1/min: 1480 Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 53,0...59,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity mind cm3/1000H.: 50,0

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750 Charge press. hPa: 1000

TD travel mm: 0,8...1,6mm: (0,5...1,9)

1/min: 900 2nd speed Charge press. hPa: 1000 mm: 1,7...2,1 mm: (1,2...2,6) TD travel

1/min: 1250 3rd speed Charge press. hPa: 1000

mm: 2,9...3,7 mm: (2,6...4,0) TD travel

	L Charge proce here 1000
Supply-pump pressure characteristic:	+ Charge press. hPa: 1000 + Del.quantity cm3/: 79,080,0 + 1000H: (76,582,5)
1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump pressure bar: 2,12,7 2nd speed 1/min: 900 Charge press. hPa: 1000 Supply-pump pressure bar: 3,74,3 3rd speed 1/min: 1250 Charge press. hPa: 1000 Supply-pump pressure bar: 5,15,7	9th speed 1/min: 700 Charge press. hPa: 1000 Del.quantity cm3/: 70,571,5 1000H: (67,075,0) 10th speed 1/min: 500 Charge press. hPa: 1000 Del.quantity cm3/: 86,094,0 1000H: - 11th speed 1/min: 500 Charge press. hPa: 1000 Del.quantity cm3/: 38,539,5 1000H: (35,043,0)
Overflow quantity at overflow valve:	Zero delivery (stop):
1st speed 1/min: 500 Charge press. hPa: -	Mech. shutoff:
Oveflow: 4183 quantity cm3/10s: (2698) 2nd speed: 1/min: 1400 Charge press. bPa: 1000	Speed 1/min: 1400 Del.quantity cm3/: 03 1000H.: -
Overflow : 55138 quantity cm3/10s: (40153)	+ Electr. shutoff:
Delivery-quant. and breakaway char.: 1st speed 1/min: 700	Speed 1/min: 250
Charge-air pressure-setting point hPa: 550 LDA stroke mm: 7,1	† † Idle delivery:
LDA stroke mm: 7,1 Del.quantity cm3/: 70,571,5 1000H.: (67,075,0) 2nd speed 1/min: 1600	+ 1st speed 1/min: 250 + Del.quantity cm3/: 7,59,5 + 1000H.: (3,513,5)
Charge press. hPa: 1000 Del.quantity cm3/: 0,03,0 1000H.: -	Automatic starting fuel delivery:
3rd speed 1/min: 1580 Charge press. hPa: 1000 Del.quantity cm3/: 0,015,0 1000H.: -	+ 1st speed 1/min: 130 + Del.quantity cm3/: - + ind. 1000H: 50,0
4th speed 1/min: 1540 Charge press. hPa: 1000 Del.quantity cm3/: 15,055,0 1000H.: -	2nd speed 1/min: 250 Del.quantity cm3/: - max. 1000H: 30,0
5th speed 1/min: 1480 Charge press. hPa: 1000	Shutoff electromagnet:
Del.quantity cm3/: 53,059,0 1000H.: (50,062,0) 6th speed 1/min: 1400 Charge press. hPa: 1000 Del.quantity cm3/: 69,072,0 1000H.: (67,573,5)	+ Cut-in + min. voltage : 10,0 + Rated voltage : 12,0 + Mounting and assembly dimensions:
7th speed 1/min: 1100 Charge press. hPa: 1000 Del.quantity cm3/: 74,077,0 1000H.: (72,079,0) 8th speed 1/min: 900	+ Designation + K mm : - + KF mm : 5,05,4 + MS mm : 1,01,4 + SVS max. mm : 1,5
•	•

XK XL mm : 18,8...20,8 mm : 12,6...16,0

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 3,9 0 Test sheet

: 846 Compl. date: : 16.05.89 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/12F1400 R239-2 Injection pump

Type number : 0 460 424 051 Customer Part-No. : 3 906 323

Customer-specific information

Customer : CDC

: 4 BTA 3.9 AU Engine

k: 90 Power 1/mi: 2800 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2

mm: 840 x Length

Start of delivery

Prestroke mm : 0.3

(from BDC): +-0.02(0.04)

Start of delivery block mm: 1,95 Piston stroke

mm: +0,02(0,06)

Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel:

1/min: 1100 Speed Charge press. hPa: 1000 Setting value mm: 1,8...2,2

Supply-pump pressure:

1/min: 1100 Charge press. hPa: 1000 Setting value bar: 5,7...6,3

Full-load del. with charge press.:

1/min: 750 Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 86,0...87,0 Dispersion cm3/: 4,0

1000H : (4,5)

Full-load del. w/out charge press.:

Speed $1/\min : 500$

Del.quantity cm3/ 1000H.: 58,5...59,5

Low-idle speed regulation:

1/min: 400 Speed

Del.quantity cm3/ 1000H.: 4,0...6,0

cm3/: 5,5 Dispersion

1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1480 Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 61,5...67,5

Start:

1/min: 100 Speed

Del.quantity : 70,0...140,0

cm3/1000H.: 70,0 mind '

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

Mfg. date: until : 846

1/min: 850 1st speed

Charge press. hPa: 1000 mm: 0,8...1,6 mm: (0,5...1,9) TD travel

2nd speed 1/min: 1100 Charge press. hPa: 1000 TD travel mm: 1,82,2	Supply-pump pressure bar: 6,36,9
mm: (1,32,7) 3rd speed 1/min: 1250	Overflow quantity at overflow valve:
Charge press. hPa: 1000	1st speed 1/min: 500
TD travel mm: 2,23,0 mm: (1,93,3)	+ Oveflow : 4183 - quantity cm3/10s: (2698)
Mfg. date: from : 945	+ 2nd speed 1/min: 1400 + Charge press. hPa: 1000
1st speed 1/min: 850	- Overflow : 55138 - quantity cm3/10s: (40153)
Charge press. hPa: 1000	+
TD travel mm: 0,81,6 mm: (0,51,9)	Delivery-quant. and breakaway char.:
2nd speed 1/min: 1100	+ Mfg. date: until : 846
Charge press. hPa: 1000	<pre>+ 1st speed 1/min: 1640 + Charge-air pressure-setting</pre>
TD travel mm: 1,82,2 mm: (1,32,7) 3rd speed 1/min: 1250	+ point hPa: 1000
3rd speed 1/min: 1250	Del.quantity cm3/: 0,03,0 1000H.: (0,03,0)
Charge press. hPa: 1000	1000H.: (0,03,0)
TD travel mm: 2,23,0 mm: (1,93,3)	2nd speed 1/min: 1600 Charge press. hPa: 1000
11811. (1)13/3/	Del.quantity cm3/: 0.015.0
Supply-pump pressure characteristic:	Del.quantity cm3/: 0,015,0 1000H.: (0,015,0)
115 - 1 to a cont 11 - 0//	+ 3rd speed 1/min: 1560
Mfg. date: until : 846 1st speed	Charge press. hPa: 1000 Del.quantity cm3/: 15,055,0
Charge press. hPa: 1000	1000H.: (15,055,0)
Supply-pump	+ 4th speed 1/min: 1480
pressure bar: 3,23,8	Charge press. hPa: 1000
2nd speed 1/min: 850 Charge press. hPa: 1000	Del.quantity cm3/: 61,567,5 1000H.: (58,570,5)
Sunni v-numo	5th speed 1/min: 1400
pressure bar: 4,75,3	+ Charge press. hPa: 1000
3rd speed 1/min: 1100	+ Del.quantity cm3/: 73,076,0
Charge press. hPa: 1000 Supply-pump	1000H.: (71,577,5) 6th speed 1/min: 1100
pressure bar: 5,76,3 4th speed 1/min: 1250	+ Charge press. hPa: 1000
4th speed 1/min: 1250	+ Deliquantity cm3/: 79,082,0
Charge press. hPa: 1000	† [UUUH.: (77,064,0)
Supply-pump pressure bar: 6,36,9	7th speed 1/min: 750 Charge press. hPa: 1000
p. cood. c	Del.quantity cm3/: 86,087,0
Mfg date: from : 945	+ 1000H.: (83,589,5)
1st speed 1/min: 500	+ 8th speed 1/min: 700
Charge press. hPa: 1000 Supply-pump	+ Charge press. hPa: 330 + Del.quantity cm3/: 72,073,0
pressure bar: 3,23,8	+ 1000H: (68,576,5)
2nd speed 1/min: 850	+ 9th speed 1/min: 500
Charge press. hPa: 1000	+ Charge press. hPa: 1000 + Del.quantity cm3/: 98,0108,0
Supply-pump pressure bar: 4,75,3	1000H: -
3rd speed 1/min: 1100	+ 10th speed 1/min: 500
Charge press. hPa: 1000	† Del.quantity cm3/: 58,559,5
Supply-pump	1000H: (55,063,0)
pressure bar: 5,76,3 4th speed 1/min: 1250	T Mfg. date: from : 945
Charge press. hPa: 1000	+ 1st speed 1/min: 700
	+

Charge-air pressure-setting	+ tall a statistica in
point hPa: 330 LDA stroke mm: 7,2	idle delivery:
Del.quantity cm3/: 64,565,5	1st speed 1/min: 400
Del.quantity cm3/: 64,565,5 1000H.: (61,069,0)	Del.quantity cm3/: 4,06,0 1000H.: (0,010,0)
2nd speed 1/min: 1640	† 1000H.: (0,010,0)
Charge press. hPa: 1000 Del.quantity_cm3/: 0,03,0	- 2nd speed 1/min: 450
1000H.: -	+ Del.quantity cm3/: 0,04,0 + 1000H.: -
3rd speed 1/min: 1600	+
Charge press. hPa: 1000	+ Automatic starting fuel delivery:
Del.quantity cm3/: 0,015,0 1000H.: -	1 1st speed 1/min. 270
4th speed 1/min: 1560	1st speed 1/min: 230 Charge press. hPa: -
Charge press. hPa: 1000	Del.quantity cm3/: -
Del.quantity cm3/: 15,055,0	† ind. 1000H: 80,0
1000H.: -	1// 1/ /00
5th speed 1/min: 1500 Charge press. hPa: 1000	+ 2nd speed 1/min: 400 + Charge press. hPa: -
Del.quantity cm3/: 48,554,5	T charge press. Ara. — + Del.quantity cm3/: -
1000H.: (45,557,5)	max. 1000H: 80,0
6th speed 1/min: 1400	+
Charge press. hPa: 1000	Shutoff electromagnet:
Del.quantity cm3/: 71,074,0 1000H.: (69,575,5)	T - Cut-in
7th speed 1/min: 1100	min. voltage : 10,0
Charge press. hPa: 1000	Rated voltage : 12,0
Del.quantity cm3/: 77,080,0	t Marmhina and assembly dimensions.
1000H.: (75,082,0) 8th speed 1/min: 750	Mounting and assembly dimensions:
Charge press. hPa: 1000	Designation
Del.quantity cm3/: 82,083,0	+ K mm:-
1000H: (79,585,5)	KF mm : K-OT
9th speed 1/min: 700 Charge press. hPa: 330	MS mm : 1,01,4 SVS max. mm : 2,5
Del.quantity cm3/: 64,565,5	XK mm : 21,823,8
1000H: (61,069,0)	XL mm : 11,514,9
10th speed 1/min: 500	
Charge press. hPa: 1000 Del.quantity cm3/: 94,0104,0	Remarks: Operate control lever after each
1000H: -	manifold-pressure compensator pressure
11th speed 1/min: 500	change.
Charge press. hPa: -	
Del.quantity cm3/: 55,556,5	Correction at adjusting nut (46)
1000H: (52,060,0)	
Zero delivery (stop):	1
•	
Mech. shutoff:	+
Speed 1/min: 1400	†
Del.quantity cm3/: 03	
1000H.: -	
-	-
Electr. shutoff:	
Speed 1/min: 400	
ELAB volt: -	-
Del.quantity cm3/: 0,03,0	+
max. 1000H.: -	+

NOS

Note inst. in remarks column

Test sheet : CUM 5,9 U27 Edition : 16.05.89

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R195 : 0 460 426 059 Type number

Customer-specific information

Customer

: 6 BT-590A Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

pressure bar: 250...253

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Lenath

Start of delivery

Prestroke mm : 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1,40

mm: +-0.02(0.06)

Outlet |

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250 Charge press. hPa: 1100 Setting value mm: 1,2...1,6

Supply-pump pressure:

1/min: 1250 Speed Charge press. hPa: 1100 Setting value bar: 6,9...7,5

Full-load del. with charge press.:

Speed 1/min: 1100 Charge press. hPa: 1100

Deliquantity cm3/

1000H.: 71,5...72,5

Dispersion cm3/: 4.01000H : (4,5)

Full-load del. w/out charge press.:

1/min : 500 Speed

Del.quantity cm3/ 1000H.: 49,5...50,5

Low-idle speed regulation:

1/min: 375 Speed Charge press. hPa: -

Del.quantity cm3/ 1000H.: 9,0...13,0 Dispersion cm3/: 5,5 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1360 Charge press. hPa: 1100

Del.quantity cm3/ 1000H: 54,0...60,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 55,0 mind

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100 Charge press. hPa: 1100

mm: 0,2...1,0 TD travel

nm: (0,0...1,2)
2nd speed 1/min: 1250
Charge press. hPa: 1100
TD travel

mm: 1,2...1,6 mm: (0,7...2,1) TD travel

	Charge press. hPa: 1100
Supply-pump pressure characteristic:	Del.quantity cm3/: 80,084,0 1000H: (78,086,0)
1st speed 1/min: 500	- 9th speed 1/min: 700
Charge press. hPa: 1100	Charge press. hPa: 580 Del.quantity cm3/: 71,572,5 1000H: (69,075,0)
Supply-pump -	Poel.quantity cm3/: 71,572,5
pressure bar: 3,64,2 - 2nd speed 1/min: 1100 -	1000H: (69,075,0)
2nd speed 1/min: 1100 -	+ 10th speed 1/min: 500
Charge press. hPa: 1100 -	H Charge press. hPa: 1100
Supply-pump -	<pre>bel.quantity cm3/: 88,096,0</pre>
pressure bar: 6,26,8 - 3rd speed 1/min: 1250 -	 1000H: -
3rd speed 1/min: 1250 -	11th speed 1/min: 500
Charge press. hPa: 1100 -	- Charge press. hPa: -
SUDDLY-DUMD -	Del.quantity cm3/: 49,550,5
pressure bar: 6,97,5	1000H: (46,054,0)
Overflow quantity at overflow valve:	Zero delivery (stop):
1st speed 1/min: 500	Mech. shutoff:
Charge press. hPa: -	Tiberia dilucotti
Oveflow : 4183	Speed 1/min: 1250
quantity cm3/10s: (2698)	Del.quantity cm3/: 03
2nd speed 1/min: 1250 -	1000H.: -
Charge press. hPa: 1100	
Overflow : 55138 -	Electr. shutoff:
quantity cm3/10s: (40153)	-
	Speed 1/min: 365
Delivery quant. and breakaway char.:	F ELAB volt: -
	Del.quantity cm3/: 0,03,0
1st speed 1/min: 700	max. 1000H.: -
Charge-air pressure-setting -	-
point hPa: 580	Idle delivery:
	1 2000 UCC110111
LDA stroke mm: 7,5	-
Del.quantity cm3/: 65,566,5	1st speed 1/min: 375
Del.quantity cm3/: 65,566,5 - 1000H.: (62,570,5) -	1st speed 1/min: 375
Del.quantity cm3/: 65,566,5 - 1000H.: (62,570,5) - 2nd speed 1/min: 1550 -	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0)
Del.quantity cm3/: 65,566,5 - 1000H.: (62,570,5) - 2nd speed 1/min: 1550 - Charge press. hPa: 1100 -	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450
Del.quantity cm3/: 65,566,5 - 1000H.: (62,570,5) - 2nd speed 1/min: 1550 - Charge press. hPa: 1100 - Del.quantity cm3/: 0,03,0 -	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: -	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0)
Del.quantity cm3/: 65,566,5 - 1000H.: (62,570,5) - 2nd speed 1/min: 1550 - Charge press. hPa: 1100 - Del.quantity cm3/: 0,03,0 - 1000H.: - 3rd speed 1/min: 1520	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: -
Del.quantity cm3/: 65,566,5 - 1000H.: (62,570,5) - 2nd speed 1/min: 1550 - Charge press. hPa: 1100 - Del.quantity cm3/: 0,03,0 - 1000H.: - 3rd speed 1/min: 1520 - Charge press. hPa: 1100	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery:
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: -	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: -
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: -
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: -
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: -	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: -
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: -
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0)	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: -
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0) 6th speed 1/min: 1250	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: - max. 1000H: 60,0
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0) 6th speed 1/min: 1250 Charge press. hPa: 1100	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: -
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0) 6th speed 1/min: 1250 Charge press. hPa: 1100 Del.quantity cm3/: 70,573,5	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: - max. 1000H: 60,0 Shutoff electromagnet:
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0) 6th speed 1/min: 1250 Charge press. hPa: 1100 Del.quantity cm3/: 70,573,5 1000H.: (69,075,0)	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: - max. 1000H: 60,0 Shutoff electromagnet: Cut-in
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0) 6th speed 1/min: 1250 Charge press. hPa: 1100 Del.quantity cm3/: 70,573,5 1000H.: (69,075,0) 7th speed 1/min: 1100	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: - max. 1000H: 60,0 Shutoff electromagnet: Cut-in min. voltage : 10,0
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0) 6th speed 1/min: 1250 Charge press. hPa: 1100 Del.quantity cm3/: 70,573,5 1000H.: (69,075,0) 7th speed 1/min: 1100 Charge press. hPa: 1100 Charge press. hPa: 1100	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: - max. 1000H: 60,0 Shutoff electromagnet: Cut-in
Del.quantity cm3/: 65,566,5 1000H.: (62,570,5) 2nd speed 1/min: 1550 Charge press. hPa: 1100 Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1520 Charge press. hPa: 1100 Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1480 Charge press. hPa: 1100 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1360 Charge press. hPa: 1100 Del.quantity cm3/: 54,060,0 1000H.: (51,063,0) 6th speed 1/min: 1250 Charge press. hPa: 1100 Del.quantity cm3/: 70,573,5 1000H.: (69,075,0)	1st speed 1/min: 375 Del.quantity cm3/: 9,013,0 1000H.: (6,016,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,04,0 1000H.: - Automatic starting fuel delivery: 1st speed 1/min: 300 Charge press. hPa: - Del.quantity cm3/: - ind. 1000H: 60,0 2nd speed 1/min: 400 Charge press. hPa: - Del.quantity cm3/: - max. 1000H: 60,0 Shutoff electromagnet: Cut-in min. voltage : 10,0

Designation

K	WW.	:	-
KF	mm	:	K-OT
MS	mm	:	1,01,4
SVS max.	mm	:	1,5

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

Test sheet : CUM 5,9 U24 Edition : 16.05.89

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278 : 0 460 426 103

Type number

Customer-specific information

Customer

Engine : 6 BT -590A CHRYSLER

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

pressure bar: 250...253

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter x Wall thickness : 2 x Length mm: 840

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block Piston stroke mm: 1,4

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100 Charge press. hPa: 1200 Setting value mm: 1,3...1,7

KSB solenoid-operated

valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100 Charge press. hPa: 1200 Setting value bar: 6,8...7,4

KSB solenoid-operated valve volt: 12,0

Full-load del. with charge press.:

1/min: 1100 Speed Charge press. hPa: 1200

Del.quantity cm3/ 1000H.: 75,5...76,5

KSB solenoid-operated volt: 12,0 valve cm3/:4,0Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

1/min : 500 Speed

Del.quantity cm3/ 1000H.: 51,5...52,5

KSB solenoid-operated volt: 12,0 cm3/: 9,0 valve Dispersion 1000H.: -

Low-idle speed regulation:

Speed 1/min: 350 Charge press. hPa: -Del.quantity cm3/ 1000H.: 5,5...9,5

KSB solenoid-operated volt: 12,0 valve cm3/: 5,5 Dispersion 1000H.: (7.0)

Full-load speed regulation:

1/min: 1340 Speed Charge press. hPa: 1200

Del.quantity cm3/ 1000H: 52,5...58,5

KSB solenoid-operated valve volt: 12,0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 60,0

N06

KSB solenoid-operated	+	KSB solenoid-operated
valve volt: 12,0	1	valve volt: 12,0 Oveflow : 4183
VOLUTION	1	Auofla: 4/1 07
	+	UVELLOW : 4103
Inspection-pump test specifications	+	quantity cm3/10s: (2698)
Test specifications in parentheses	+	2nd speed 1/min: 1250
The second secon	1	Charge press. hPa: 1200
Timina da da akamaka iskia.	T	
Timing-device characteristic:	+	KSB solenoid-operated
	+	valve volt: 12,0
	1	Overflow : 55138
1st speed 1/mins /50	İ	guantity and /10 (/0 157)
1st speed 1/min: 450	†	quantity cm3/10s: (40153)
Charge press. hPa: -	+	
TD travel mm: 3,04,0	1	Delivery-quant. and breakaway char.
	j	becire, quarie, and bicarraway enail.
mm: -	T	4
KSB solenoid-operated	+	1st speed 1/min: 700
valve volt: -	+	Charge-air pressure-setting
2nd speed 1/min: 1000	1	point hPa: 700
Character 1/11/11 1000	T	positi ilia. 100
Charge press. hPa: 1200	+	LDA stroke mm: 6,2
TD travel mm: 0,51,3	+	KSB solenoid-operated
mm: (0,21,6)	1	valve volt: 12,0
11111. (0/21/0/	T	Valve VOLL. 12/0
KSB solenoid-operated	+	Del.quantity cm3/: 68,069,0 1000H.: (64,572,5)
valve volt: 12,0	1	1000H : (64.572.5)
3rd speed 1/min: 1100	1	2nd speed 1/min: 1550
of speed Milition 1000	T	alu speeu 1/111111: 1000
Charge press. hPa: 1200	+	Charge press. hPa: 1200
TD travel mm: 1,31,7	+	KSB solenoid-operated
mm. (/) 8 2 2)		
mm: (0,82,2)	T	valve volt: 12,0
KSB solenoid-operated	+	Deliquantity cm3/: U3,U
valve volt: 12.0 4th speed 1/min: 1250	+	Del.quantity cm3/: 03,0 1000H.: -
4th speed 1/min: 1250	1	3rd speed 1/min: 1450
observation (A)	T	
Charge press. hPa: 1200	+	Charge press. hPa: 1200
TD travel mm: 2,23,0	+	KSB solenoid-operated
mn: (1,93,3)	1	valve volt: 12,0
	7	
KSB solenoid-operated	+	Del.quantity cm3/: 0,015,0
valve volt: 12,0	+	1000H.: -
	1	4th speed 1/min: 1410
Complete many management about a barrack and	T	
Supply-pump pressure characteristic:	+	Charge press. hPa: 1200
	+	KSB solenoid-operated
1st speed 1/min: 500	\perp	valve volt: 12,0
	T	
Charge press. hPa: 1200	†	vel.quantity_cm3/: 15,055,0
Supply-pump	+	Del.quantity cm3/: 15,055,0 1000H.: -
pressure bar: 4,14,7	1	5th speed 1/min: 1340
VCD and among an arrival	1	Change appear hos 4200
KSB solenoid-operated	T	Charge press. hPa: 1200
valve volt: 12,0	+	KSB solenoid-operated
2nd speed 1/min: 1100	1	valve volt: 12,0
Charge press. hPa: 1200	1	Del.quantity cm3/: 52,558,5
	T	ACCOUNTIES CHOIL SECTIONS
Supply-pump	+	1000H.: (49,561,5)
pressure bar: 6,87,4	+	6th speed 1/min: 1250
KSB solenoid-operated	1	Charge press. hPa: 1200
that soccional operated		
valve volt: 12,0	+	KSB solenoid-operated
3rd speed 1/min: 1250	+	valve volt: 12,0
Charge press. hPa: 1200	1	Del.quantity cm3/: 71,574,5
Cimple man	- 1	40000 (70 0 7/ 0)
Supply-pump	+	1000H.: (70,076,0)
pressure bar: 7,58,1	+	7th speed 1/min: 1100
KSB solenoid-operated	1	Charge press. hPa: 1200
	1	VCD colonoid-proported
valve volt: 12,0	T	KSB solenoid-operated
	+	valve volt: 12,0
Overflow quantity at overflow valve:	+	Del.quantity cm3/: 75.576.5
and the same same and the same tending	L	Del.quantity cm3/: 75,576,5 1000H.: (73,079,0)
Ant A 2 * COO	T	(UUUn.: (13,U17,U)
1st speed 1/min: 500	+	8th speed 1/min: 750
Charge press. hPa: -	+	Charge press. hPa: 1200
and the second of the second o	1.	and the passes in the second
	T	

KSB solenoid-operated volt: 12,0 cm3/: 75,0...80,0 1000H: (73,0...82,0) 1/min: 700 valve Del.quantity 9th speed Charge press. hPa: 700 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 68,0...69,0 1000H: (64,5...72,5) 10th speed 1/min: 500 Charge press. hPa: 1200 KSB solenoid operated valve volt: 12,0 Del.quantity cm3/: 82,0...94,0 1000H: -1/min: 500 11th speed Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 51,5...52,5 1000H: (48,0...56,0) Zero delivery (stop): Mech. shutoff: 1/min: 1250 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 350 Speed volt: -ELAB Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1/min: 350 1st speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 5,5...9,5 1000H.: (2,5...12,5) 1/min: 450 2nd speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,0...4,0 1000H.: 1/min: 300 3rd speed KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 8,5...16,5 1000H .: -Automatic starting fuel delivery: 1/min: 130 1st speed Charge press. hPa: -

KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: -1000H: 60,0 ind. 2nd speed 1/min: 250 Charge press. hPa: -KSB solenoid operated volt: 12,0 valve Del.quantity cm3/: -max. 1000H : 50,0 Shutoff electromagnet:

Cut-in

: 10,0 min. voltage : 12,0 Rated voltage

Mounting and assembly dimensions:

Designation

Κ mn KF : K-0T mm MS mm : 1,0...1,4SVS max. mm : 1,4mm : 18,8...20,8 XK mm : 12,5...15,9 Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 5,9 U25 Test sheet Edition : 16.05.89

replaces

Calibrating oil : ISO 4113

: VE 6/12F1250 R278 Injection pump Type number : 0 460 426 103 Customer Part-No. : 3 915 289

Customer-specific information

Customer

: CDC

: 6 BT -590A CHRYSLER Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250...253 pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery Prestroke mm: -

(from BDC): -

Start of delivery block Piston stroke mm: 1,4

mn: +0,02(0,06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing device travel:

1/min: 1100 Speed

N09

Charge press. hPa: 1200 Setting value mm: 1,3...1,7

KSB solenoid-operated valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100 Charge press. hPa: 1200 Setting value bar: 6,8...7,4 KSB solenoid-operated

valve volt: 12.0

Full-load del. with charge press.:

1/min: 1100 Charge press. hPa: 1200 Del.quantity cm3/ 1000H.: 73,0...74,0

KSB solenoid-operated volt: 12,0 valve Dispersion cm3/:4,01000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500

Del.quantity cm3/ 1000H.: 51,0...52,0

KSB solenoid-operated volt: 12,0 valve cm3/: 9.0 Dispersion 1000H.: -

Low-idle speed regulation:

1/min: 350 Speed Charge press. hPa: Del.quantity cm3/
1000H.: 5,5...9,5

KSB solenoid operated valve volt: 12,0 cm3/: 5,5 Dispersion 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340 Charge press. hPa: 1200 Del.quantity cm3/ 1000H: 52,5...58,5

KSB solenoid-operated valve volt: 12,0

Start:

Speed 1/min: 100 Charge press. hPa: -Del.quantity cm3/1000H.: 60,0 mind

KSB solenoid-operated valve volt: 12,0	†	KSB solenoid-operated valve volt: 12,0 Oveflow : 4183
Inspection-pump test specifications Test specifications in parentheses	+	quantity cm3/10s: (2698) 2nd speed 1/min: 1250 Charge press. hPa: 1200
Timing-device characteristic:	†	KSB solenoid-operated valve volt: 12,0 Overflow : 55138
1st speed 1/min: 450 Charge press. hPa: -	+	quantity cm3/10s: (40153)
TD travel mm: 3,04,0	Ŧ	Delivery-quant. and breakaway char.
KSB solenoid-operated valve volt: -	‡	1st speed
2nd speed 1/min: 1000 Charge press. hPa: 1200	<u>†</u>	point hPa: 700 LDA stroke mm: 6,2
TD travel mm: 0,51,3	Ŧ	KSB solenoid-operated
mm: (0,21,6) KSB solenoid-operated	‡	valve volt: 12,0 Del.quantity cm3/: 68,069,0
valve volt: 12,0 3rd speed 1/min: 1100	‡	1000H.: (64,572,5) 2nd speed 1/min: 1550
Charge press. hPa: 1200	+	Charge press. hPa: 1200
TD travel mm: 1,31,7 mm: (0,82,2)	Ŧ	KSB solenoid-operated valve volt: 12,0
KSB solenoid-operated valve volt: 12.0	†	Del.quantity cm3/: 03,0 1000H.: -
valve volt: 12.0 4th speed 1/min: 1250	+	3rd speed 1/min: 1450
Charge press. hPa: 1200 TD travel mm: 2,23,0	‡	Charge press. hPa: 1200 KSB solenoid-operated
1011. (1/2)	+	valve volt: 12,0
KSB solenoid-operated valve volt: 12,0	Ŧ	Del.quantity cm3/: 0,015,0 1000H.: -
Supply-pump pressure characteristic:	†	4th speed 1/min: 1410 Charge press. hPa: 1200
	+	KSB solenoid-operated
1st speed 1/min: 500 Charge press. hPa: 1200	‡	valve volt: 12,0 Del.quantity cm3/: 15,055,0
Supply-pump	<u>†</u>	Del.quantity cm3/: 15,055,0 1000H.: -
pressure bar: 4,14,7 KSB solenoid-operated	Ŧ	5th speed 1/min: 1340 Charge press. hPa: 1200
valve volt: 12,0 2nd speed 1/min: 1100	1	KSB solenoid-operated valve volt: 12,0
Charge press. hPa: 1200 Supply-pump	‡	Del.quantity cm3/: 52,558,5 1000H.: (49,561,5)
pressure bar: 6,87,4 KSB solenoid-operated	İ	6th speed 1/min: 1250 Charge press. hPa: 1200
valve volt: 12,0	Ŧ	KSB solenoid-operated
3rd speed '1/min: 1250 Charge press. hPa: 1200	‡	valve volt: 12,0 Del.quantity cm3/: 69,072,0
Supply-pump	+	1000H.: (67,573,5)
pressure bar: 7,58,1 KSB solenoid-operated	Ŧ	7th speed 1/min: 1100 Charge press. hPa: 1200
valve volt: 12,0	‡	KSB solenoid-operated valve volt: 12,0
Overflow quantity at overflow valve:	‡	Del.quantity cm3/: 73,074,0 1000H.: (70,576,5)
1st speed 1/min: 500 Charge press. hPa: -	+	8th speed 1/min: 750 Charge press. hPa: 1200

KSB solenoid-operated valve volt: 12,0
Del.quantity cm3/: 72,0...77,0
1000H: (70,0...79,0)
9th speed 1/min: 700
Charge press. hPa: 700
KSB solemaid KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 68,0...69,0 1000H: (64,5...72,5) 10th speed 1/min: 500 Charge press. hPa: 1200 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 79,0...91,0 1000H: -1/min: 500 11th speed Charge press. hPa: -KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 51,0...52,0 1000H: (47,5...55,5) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1250 Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: Speed 1/min: 350 ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 350 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 5,5...9,5 1000H.: (2,5...12,5) 1/min: 450 2nd speed KSB solenoid-operated volt: 12,0 valve Del.quantity (13/: 0,0...4,0 3rd speed 1/min: 300 KSB solenoid-operated valve volt: 12.0 Del.quantity cm3/: 8,5...16,5 1000H .: -Automatic starting fuel delivery: 1st speed 1/min: 130 Charge press. hPa: -

KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: - ind. 1000H: 60,0

2nd speed 1/min: 250 Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: max. 1000H: 50,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,7 KF mm : K-OT MS mm : 1,0...1,4 SVS max. mm : 1,4 XK mm : 18,8...20,8 XL mm : 12,5...15,9

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column : CUM 5,9 U33 : 17.05.89 Test sheet Edition replaces Calibrating oil : ISO 4113 Injection pump : VE 6/12F1250 R304 : 0 460 426 110 Type number Customer-specific information Customer : CDC Engine : 6 BTA Power k: 136 1/mi: 2500 Speed TEST BENCH REQUIREMENTS Calibrating-oil

return temp. °C with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder : 1 688 901 027 assembly

Opening

pressure bar: 250...253

Perforated-plate diameter

mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1,15

mm: +0,02(0,06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing device travel:

M2

1/min: 850 Speed Charge press. hPa: 1400 Setting value mm: 2,1...2,5 KSB solenoid-operated volt: 12,0 valve

Supply-pump pressure:

1/min: 850 Charge press. hPa: 1400 Setting value bar: 6,1...6,7 KSB solenoid-operated volt: 12,0 valve

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 1400 Del.quantity cm3/ 1000H.: 82,0...83,0

KSB solenoid-operated volt : 12,0 cm3/ : 4,0 valve Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

1/min : 500 Speed Del.quantity cm3/ 1000H.: 58,5...59,5

KSB solenoid-operated valve volt: 12,0

Low-idle speed regulation:

1/min: 375 Charge press. hPa: -Del.quantity cm3/ 1000H.: 4,0...6,0

KSB solenoid-operated volt: 12,0 cm3/: 5,5 1000H.: (7,0) valve Dispersion

Full-load speed regulation:

1/min: 1370 Speed Charge press. hPa: 1400 Del.quantity cm3/ 1000H: 61,0...67,0

KSB solenoid-operated valve volt: 12.0

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity cm3/1000H.: 70,0

KSB solenoid-operated valve volt: 12,0	+ KSB solenoid-operated + valve volt: 12,0 + Oveflow : 4183
Inspection pump test specifications Test specifications in parentheses	quantity cm3/10s: (2698) 2nd speed 1/min: 1250 Charge press. hPa: 1400
Timing-device characteristic:	+ KSB solenoid-operated + valve volt: 12,0 + Overflow : 55138
1st speed 1/min: 400 Charge press. hPa: 1400	quantity cm3/10s: (40153)
TD travel mm: 3,04,0 mm: - KSB solenoid-operated	Delivery—quant. and breakaway char. 1st speed 1/min: 700
valve volt: - 2nd speed 1/min: 700	+ Charge-air pressure-setting + point hPa: 850
Charge press. hPa: 1400 TD travel mm: 0,10,9	LDA stroke mm: 6,6 KSB solenoid-operated
KSB solenoid-operated valve volt: 12,0	+ valve volt: 12,0 + Del.quantity cm3/: 78,079,0 + 1000H.: (74,083,0)
3rd speed 1/min: 850 Charge press. hPa: 1400	1000H.: (74,083,0) 2nd speed 1/min: 1500 Charge press. hPa: 1400
TD travel mm: 2,12,5 mm: (1,63,0) KSB solenoid-operated	+ KSB solenoid-operated + valve volt: 12,0 + Del.quantity cm3/: 0,03,0
valve volt: 12,0 4th speed 1/min: 1000	1000H.: - - 3rd speed 1/min: 1470
Charge press. hPa: 1400 TD travel mm: 2,93,7 mm: (2,64,0)	+ Charge press. hPa: 1400 + KSB solenoid-operated + valve volt: 12,0
KSB solenoid-operated valve volt: 12,0	Del.quantity cm3/: 0,015,0 1000H.: -
Supply-pump pressure characteristic:	Charge press. hPa: 1400 KSB solenoid-operated
1st speed 1/min: 500 Charge press. hPa: 1400 Supply-pump	+ valve volt: 12,0 + Del.quantity cm3/: 15,055,0 + 1000H.: -
pressure bar: 4,55,1 KSB solenoid-operated	5th speed 1/min: 1370 Charge press. hPa: 1400
valve volt: 12,0 2nd speed 1/min: 850 Charge press. hPa: 1400	KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 61,067,0
Supply-pump pressure bar: 6,16,7	+ 1000H.: (58,070,0) + 6th speed 1/min: 1250
KSB solenoid-operated valve volt: 12.0 3rd speed 1/min: 1250	+ Charge press. hPa: 1400 + KSB solenoid-operated + valve volt: 12,0
Charge press. hPa: 1400 Supply-pump	Del.quantity cm3/: 82,083,0 1000H.: (79,585,5)
pressure bar: 7,78,3 KSB solenoid-operated valve volt: 12,0	+ 7th speed 1/min: 1100 + Charge press. hPa: 1400 + KSB solenoid-operated
Overflow quantity at overflow valve:	+ valve volt: 12,0 + Del.quantity cm3/: 80,086,0
1st speed 1/min: 500 Charge press. hPa: -	1000H.: (78,587,5) - 8th speed 1/min: 850 - Charge press. hPa: 1400

KSB solenoid-operated	+	Del.quantity_cm3/: 79,080,0_
valve volt: 12,0	+	1000H.: (76,582,5
Del.quantity cm3/: 82,589,5	+	7th speed 1/min: 1100
1000H: (81,091,0)	+	Charge press. hPa: 1400
9th speed 1/min: 700	+	KSB solenoid-operated
Charge press. hPa: 850	+	valve volt: 12,0
KSB solenoid-operated	+	Del.quantity_cm3/: 77,083,0_
valve volt: 12,0	+	valve volt: 12,0 Del.quantity cm3/: 77,083,0 1000H.: (75,584,5)
Del.quantity cm3/: 78,079,0	+	8th speed 1/min: 850
1000H: (74,083,0)	+	Charge press. hPa: 1400
10th speed 1/min: 500	+	KSB solenoid-operated
Charge press. hPa: 1400	+	valve volt: 12,0
KSB solenoid-operated	+	Del.quantity cm3/: 79,586,5
valve volt: 12,0	+	valve volt: 12,0 Del.quantity cm3/: 79,586,5 1000H: (78,088,0)
Del.quantity cm3/: 95,5109,5	+	9th speed 1/min: 700
1000H: -	+	Charge press. hPa: 745
11th speed 1/min: 500	+	KSB solenoid-operated
Charge press. hPa: -	+	valve volt: 12,0
KSB solenoid-operated	+	Del.guantity cm3/: 76,077,0
valve volt: 12,0	+	Del.quantity cm3/: 76,077,0 1000H: (72,081,0)
Del.quantity cm3/: 58,559,5	+	10th speed 1/min: 500
1000H: (54,563,5)	+	Charge press. hPa: 1400
·	+	KSB solenoid-operated
Mfg. date: from : 944	+	valve volt: 12,0
1st speed 1/min: 700	+	Del.quantity cm3/: 92,5106,5
Charge-air pressure-setting	+	1000H: -
point hPa: 745	+	11th speed 1/min: 500
LDA stroke mm: 6,6	+	Charge press. hPa: -
KSB solenoid-operated	1	KSB solenoid-operated
valve volt: 12,0	1	valve volt: 12,0
Del.quantity cm3/: 76,077,0	1	Del.quantity cm3/: 58,559,5
1000H.: (72,081,0)	1	1000H: (54,563,5)
2nd speed 1/min: 1500	1	100011. (31/311.03/3)
Charge press. hPa: 1400	1	Zero delivery (stop):
KSB solenoid-operated	1	zero decivery (stop):
valve volt: 12,0	1	Mech. shutoff:
Del.quantity cm3/: 0,03,0	1	Ticom Shacorr.
1000H.: -	1	Cross 1/min. 1250
7.1		
1/min 14/11	I	Speed 1/min: 1250
3rd speed 1/min: 1470 Charge press hPa: 1400	Ī	Del.quantity cm3/: 03
Charge press. hPa: 1400	<u> </u>	
Charge press. hPa: 1400 KSB solenoid-operated	T + 1	Del.quantity cm3/: 03 1000H.: -
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0		Del.quantity cm3/: 03
Charge press. hPa: 1400 KSB solenoid operated valve volt: 12,0 Del.quantity cm3/: 0,015,0		Del.quantity cm3/: 03 1000H.: - Electr. shutoff:
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: _		Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420		Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: -
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400		Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: -
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated		Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0	┤╸┤╸┤╸┤╸┤╸┤╸┤╸┤╸┤╸┤╸ ┤	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,055,0	╿╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸┇╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: -
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: -	┞╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery:
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370	┤╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400	╿╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated	┞╸╏╸┩╸┩╸┩╸╏╸╏╸┩╺╏╸┩╸╏╸╏╸╏╸┩╸╏╸╏╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0	┞╸╏╶┩╸┩╸┩╸╃╸╏╸╏╸┩╸╏╸╏╸╏╸╏╸┩╸╏╸╏╸╏╸╏ ╾	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 4,06,0
Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 61,067,0	┞╸╏╸┩╸┩╸┩╸╏╸╏╸╏╸┫╺╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 4,06,0 1000H.: (0,010,0)
Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 7420 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 61,067,0 1000H.: (58,070,0)	┞╸╏╸┩╸┩╸┩╸╏╸╏╸╏╸┩╸┫╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 4,06,0 1000H.: (0,010,0) 2nd speed 1/min: 400
Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 1420 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 61,067,0 1000H.: (58,070,0) 6th speed 1/min: 1250	╎╸╏╸╏╸┩╸┩╸╃╸╏╸╏╸┩╸┫╸╏╸╏╸╏╸╏╸┩╸╏╸╏╸╏╸╏╸╏╸	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 4,06,0 1000H.: (0,010,0) 2nd speed 1/min: 400 KSB solenoid-operated
Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 1420 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 61,067,0 1000H.: (58,070,0) 6th speed 1/min: 1250 Charge press. hPa: 1400	╿╸╏╸╏╸┩╸┩╸╃╸╃╸╃╸╃╸╃╸╃╸╇╸╇╸╇╍╇╍╇╸╊╸╃╍╇╼╇╼	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 4,06,0 1000H.: (0,010,0) 2nd speed 1/min: 400 KSB solenoid-operated valve volt: 12,0
Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 0,015,0 1000H.: 4th speed 1/min: 1420 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: - 5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated Valve Volt: 12,0 Del.quantity cm3/: 61,067,0 1000H.: (58,070,0) 6th speed 1/min: 1250	╎╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏	Del.quantity cm3/: 03 1000H.: - Electr. shutoff: Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: - Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 4,06,0 1000H.: (0,010,0) 2nd speed 1/min: 400 KSB solenoid-operated

3rd speed 1/min: 325 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 12,5..20,5 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 150 Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: ind. 1000H: 80,0

2nd speed 1/min: 240 Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: max. 1000H: 60,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

Operate control lever after each manifold—pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 5,9 U30 Test sheet Edition : 17.05.89

replaces

: ISO 4113 Calibrating oil

: VE 6/12F1250 R304 Injection pump

: 0 460 426 110 Type number Customer Part-No.: 3 911 239

Customer-specific information

Customer

Engine : 6 BTA

Power k: 136 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery Prestroke mm : --(from BDC): -

Start of delivery block Piston stroke mm: 1,15

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel:

Speed 1/min: 850 Charge press. hPa: 1400 Setting value mm: 2,1...2,5

KSB solenoid-operated valve volt: 24,0

Supply-pump pressure:

1/min: 850 Speed Charge press. hPa: 1400 Setting value bar: 6,1...6,7 KSB solenoid-operated

valve volt: 24,0

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 1400 Del.quantity cm3/ 1000H.: 82,0...83,0

KSB solenoid-operated valve volt : 24,0 cm3/:4,0Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del.quantity cm3/ 1000H.: 58,5...59,5

KSB solenoid-operated valve volt: 24,0

Low-idle speed regulation:

Speed 1/min: 375 Charge press. hPa: Del.quantity cm3/
1000H.: 4,0...6,0

KSB solenoid-operated volt: 24,0 cm3/: 5,5 1000H.: (7,0) valve Dispersion

Full-load speed regulation:

1/min: 1370 Speed Charge press. hPa: 1400 Del.quantity cm3/ 1000H: 61,0...67,0

KSB solenoid-operated valve volt: 24,0

Start:

1/min: 100 Charge press. hPa: -

Del.quantity :-	+ KSB solenoid-operated
mind cm3/1000H.: 70,0	+ valve volt: 24,0 + Oveflow : 4183
Inspection-pump test specifications	quantity cm3/10s: (2698)
Test specifications in parentheses	+ 2nd speed 1/min: 1250
The specific of the second of	+ Charge press. hPa: 1400
Timing-device characteristic:	+ KSB solenoid-operated
•	+ valve volt: 24,0
	+ Overflow : 55138
1st speed 1/min: 400	quantity cm3/10s: (40153)
Charge press. hPa: 1400	+
TD travel mm: 3,04,0	+ Delivery-quant. and breakaway char.:
mm: -	4.4
KSB solenoid-operated	+ 1st speed 1/min: 700
valve volt: - 2nd speed 1/min: 700	Charge-air pressure-setting
Charge press. hPa: 1400	+ point hPa: 850 + LDA stroke mm: 6,6
TD travel mm: 0,10,9	+ LDA stroke mm: 6,6 + KSB solenoid-operated
mm: (0,01,2)	Valve volt: 24.0
KSB solenoid-operated	+ valve volt: 24,0 - Del.quantity cm3/: 78,079,0 1000H.: (74,083,0)
valve volt: 24,0	1000H.: (74.083.0)
3rd speed 1/min: 850	+ 2nd speed 1/min: 1500
Charge press. hPa: 1400	+ Charge press. hPa: 1400
TD travel mm: 2,12,5	+ KSB solenoid-operated
mm: (1,63,0)	+ valve volt: 24,0
KSB solenoid-operated	+ Del.quantity cm3/: 0,03,0
valve volt: 24,0	+ 1000H.: -
4th speed 1/min: 1000	+ 3rd speed 1/min: 1470
Charge press. hPa: 1400	+ Charge press. hPa: 1400
TD travel mm: 2,93,7	+ KSB solenoid-operated
mm: (2,64,0)	† valve volt: 24,0
KSB solenoid-operated	+ Del.quantity_cm3/: 0,015,0
valve volt: 24,0	+ 1000H.: -
	+ 4th speed 1/min: 1420
Supply-pump pressure characteristic:	+ Charge press. hPa: 1400
1-t 1/-:- 500	+ KSB solenoid-operated
1st speed 1/min: 500	+ valve volt: 24,0
Charge press. hPa: 1400	+ Del.quantity_cm3/: 15,055,0
Supply-pump	1000H.: -
pressure bar: 4,55,1	+ 5th speed 1/min: 1370
KSB solenoid-operated valve volt: 24,0	+ Charge press. hPa: 1400 + KSB solenoid-operated
2nd speed 1/min: 850	+ valve volt: 24,0
Charge press. hPa: 1400	1 Del quantity cm3/: 61.0 67.0
Supply-pump	Del.quantity cm3/: 61,067,0 1000H.: (58,070,0) 6th speed 1/min: 1250
pressure bar: 6,16,7	+ 6th speed 1/min: 1250
KSB solenoid-operated	+ Charge press. hPa: 1400
valve volt: 24,0	+ KSB solenoid-operated
3rd speed 1/min: 1250	+ valve volt: 24.0
Charge press. hPa: 1400	+ Del.quantity cm3/: 82,083,0
Supply-pump	Del.quantity cm3/: 82,083,0 1000H.: (79,585,5)
pressure bar: 7,78,3	+ /th speed 1/min: 1100
KSB solenoid-operated	+ Charge press. hPa: 1400
valve volt: 24,0	+ KSB solenoid-operated
	+ valve volt: 24,0
Overflow quantity at overflow valve:	Del.quantity cm3/: 80,086,0 1000H.: (78,587,5)
Ast sound Africa FOO	† 1000H.: (78,587,5)
1st speed 1/min: 500	+ 8th speed 1/min: 850
Charge press. hPa: -	Charge press. hPa: 1400
	†

KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 82,589,5 1000H: (81,091,0) 9th speed 1/min: 700 Charge press. hPa: 850 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 78,079,0 1000H: (74,083,0) 10th speed 1/min: 500 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 95,5109,5 1000H: - 11th speed 1/min: 500 Charge press. hPa: - KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 58,559,5 1000H: (54,563,5)
Zero delivery (stop):
Mech. shutoff:
Speed 1/min: 1250 Del.quantity cm3/: 03 1000H.: -
Electr. shutoff:
Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
Idle delivery:
1st speed 1/min: 375 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 4,06,0 1000H.: (0,010,0) 2nd speed 1/min: 400 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 0,04,0 1000H.: - 3rd speed 1/min: 325 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 12,520,5 1000H.: -
Automatic starting fuel delivery:
1st speed 1/min: 150

KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: - 1000H: 80,0 2nd speed 1/min: 240 Charge press. hPa: - KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: - max. 1000H: 60,0

Shutoff electromagnet:

Cut-in

min. voltage : 20,0 Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm : 3,6...3,8 KF mm : -MS mm : 0,8...1,2 SVS max. mm : 4,4

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

N18

Note inst. in remarks column

: CUM 5,9 U32 Test sheet : 17.05.89 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R304

Type number : 0 460 426 110 Customer Part-No. : 3 914 892

Customer-specific information

Customer : CDC

Engine : 6 BTA

k: 136 Power 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 **m**m : 840 x Length

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block mm: 1,15 Piston stroke

mm: +0.02(0.06)

Outlet : D

Injection pump setting values Test specifications in parentheses Timing-device travel:

Speed 1/min: 850 Charge press. hPa: 1400 Setting value mm: 2,1...2,5

KSB solenoid-operated valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 850 Charge press. hPa: 1400 Setting value bar: 6,1...6,7 KSB solenoid-operated

valve volt: 12,0

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 1400 Del.quantity cm3/ 1000H.: 82,0...83,0

KSB solenoid-operated volt: 12,0 valve Dispersion cm3/:4,01000H : (4,5)

Full-load del. w/out charge press.:

Speed $1/\min : 500$

Del.quantity cm3/

1000H.: 58,5...59,5

KSB solenoid-operated valve volt: 12,0

Low-idle speed regulation:

1/min: 375 Speed Charge press. hPa: -

Del.quantity cm3/ 1000H.: 4,0...6,0

KSB solenoid-operated volt: 12.0 cm3/: 5.5 1000H.: (7,0) valve Dispersion

Full-load speed regulation:

Speed 1/min: 1370 Charge press. hPa: 1400

Del.quantity cm3/ 1000H: 61,0...67,0

KSB solenoid-operated valve volt: 12,0

Start:

Speed 1/min: 100 Charge press. hPa: -

Del.quantity :-	1	Charge press. hPa: -
mind cm3/1000H.: 70,0	\mathbf{I}	KSB solenoid operated
KSB solenoid-operated	T	valva val++ 12.0
	T	valve volt: 12,0
valve volt: 12,0	†	Oveflow : 4183
	+	quantity cm3/10s: (2698)
Inspection_pump_test_specifications	+	2nd speed 1/min: 1250
Test specifications in parentheses	+	Charge press. hPa: 1400
	+	KSB solenoid-operated
Timing-device characteristic:	1	valve volt: 12,0
	1	Overflow : 55138
	1	quantity cm3/10s: (40153)
1st speed 1/min: 400	T	quarterty that tost (40155)
Charge press. hPa: 1400	T	Not from the majorate and broaden in the same
	T	Delivery-quant. and breakaway char.:
	+	1-+ 1
m: -	+	1st speed 1/min: 700
KSB solenoid-operated	+	Charge-air pressure-setting
valve volt: -	+	point hPa: 850
2nd speed 1/min: 700	+	LDA stroke mm: 6,6
Charge press. hPa: 1400	+	KSB solenoid-operated
TD travel mm: 0,10,9	+	valve vol+• 12 0
mm: (0,01,2)	1	Del quantity cm3/. 78.0 79.0
KSB solenoid-operated	1	Del.quantity cm3/: 78,079,0 1000H.: (74,083,0)
valve volt: 12,0	T	2nd speed 1/min: 1500
	T	
3rd speed 1/min: 850	†	Charge press. hPa: 1400
Charge press. hPa: 1400	+	KSB solenoid-operated
TD travel mm: 2,12,5	+	valve volt: 12,0
mm: (1,63,0)	+	Del.quantity_cm3/: 0,03,0
KSB solenoid-operated	+	Del.quantity cm3/: 0,03,0 1000H.: -
valve volt: 12,0	+	3rd speed 1/min: 1470
4th speed 1/min: 1000	+	Charge press. hPa: 1400
Charge press. hPa: 1400	1	KSB solenoid-operated
TD travel mm: 2,93,7	1	valve volt: 12,0
mm: (2,64,0)	1	Del quantity cm3/: 0 0 15 0
KSB solenoid-operated		Del.quantity cm3/: 0,015,0 1000H.: -
valve volt: 12,0	T	/th anand 1/min 1/20
vacve vocc: 12,0	T	4th speed 1/min: 1420
O	†	Charge press. hPa: 1400
Supply-pump pressure characteristic:	+	KSB solenoid-operated
	+	valve volt: 12,0
1st speed 1/min: 500	+	Del.quantity cm3/: 15,055,0
Charge press. hPa: 1400	+	1000H.: -
Supply-pump	+	5th speed 1/min: 1370
pressure bar: 4,55,1	+	Charge press. hPa: 1400
KSB solenoid-operated	1	KSB solenoid-operated
valve volt: 12,0	\perp	valve volt: 12,0
2nd speed 1/min: 850	\perp	Del.quantity cm3/: 61,067,0
Charge press. hPa: 1400	Ł	1000H.: (58,070,0)
Supply-pump	T	6th speed 1/min: 1250
	T	
pressure bar: 6,16,7	T	Charge press. hPa: 1400
KSB solenoid-operated	†	KSB solenoid-operated
valve volt: 12,0	+	valve volt: 12,0
3rd speed 1/min: 1250	+	Del.quantity cm3/: 82,083,0
Charge press. hPa: 1400	+	1000H.: (79,585,5)
Supply-pump	+	7th speed 1/min: 1100
pressure bar: 7,78,3	+	Charge press. hPa: 1400
KSB solenoid-operated	+	KSB solenoid-operated
valve volt: 12,0	1	valve volt: 12,0
	1	Del.quantity cm3/: 80,086,0
Overflow quantity at overflow valve:	1	1000H.: (78,587,5)
verticon qualities at overticon valve.	T	8th anged 1/min. 950
1st speed 1/min FM	T	8th speed 1/min: 850
1st speed 1/min: 500	+	Charge press. hPa: 1400

KSB solenoid-operated volt: 12,0 valve cm3/: 82,5...89,5 1000H: (81,0...91,0) 1/min: 700 Del.quantity 9th speed Charge press. hPa: 850 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 78,0...79,0 1000H: (74,0...83,0) 10th speed 1/min: 500 Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12.0 Del.quantity cm3/: 95,5...109,5 1000H: -1/min: 500 11th speed Charge press. hPa: -KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 58,5...59,5 1000H: (54,5...63,5) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1250 Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 4,0...6,0 1000H.: (0,0...10,0) 1/min: 400 2nd speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,0...4,0 1000H.: -1/min: 325 3rd speed KSB solenoid operated valve volt: 12,0 Del.quantity cm3/: 12,5..20,5 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 150 Charge press. hPa: -

KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: -1000H: 80,0 ind. 1/min: 240 2nd speed Charge press. hPa: -KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: - max. 1000H: 60,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation mm : 3,6...3,8KF mm : MS mm : 0,8...1,2SVS max. mm : 4,4Remarks: change.

Operate control lever after each manifold pressure compensator pressure

Correction at adjusting nut (46)

N21

Note inst. in remarks column

: CUM 5.9 U29 Test sheet Edition : 17.05.89

replaces

Calibrating oil : ISO 4113

: VE 6/12F1250 R304 Injection pump : 0 460 426 110 Type number

Customer Part-No.: 3 914 893

Customer—specific information

Customer

: CDC

Engine

: 6 BTA

Power Speed k: 136

1/mi: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block Piston stroke mm: 1,15

mm: +0.02(0.06)

Outlet : D

Injection pump setting values Test specifications in parentheses Timing-device travel:

Speed 1/min: 850 Charge press. hPa: 1400 Setting value mm: 2,1...2,5

KSB solenoid-operated volt: 24,0 valve

Supply-pump pressure:

Speed 1/min: 850 Charge press. hPa: 1400 Setting value bar: 6,1...6,7

KSB solenoid-operated volt: 24,0 valve

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 1400

Del.quantity cm3/ 1000H.: 82,0...83,0

KSB solenoid-operated valve volt: 24,0 cm3/:4,0Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed

Del.quantity cm3/ 1000H.: 58,5...59,5

KSB solenoid-operated volt: 24.0 valve

Low-idle speed regulation:

1/min: 375 Speed Charge press. hPa: -Del.quantity cm3/ 1000H.: 4,0...6,0

KSB solenoid-operated volt: 24,0 cm3/: 5,5 1000H.: (7,0) valve Dispersion

Full-load speed regulation:

Speed 1/min: 1370 Charge press. hPa: 1400 Del.quantity cm3/

1000H: 61,0...67,0

KSB solenoid-operated valve volt: 24,0

Start:

1/min: 100 Speed Charge press. hPa: -

bel.quantity : - mind cm3/1000H.: 70/0	+ KSB solenoid-operated + valve volt: 24,0
mina cilib/ 1000ff 10/0	+ Oveflow : 4183
Inspection-pump test specifications	quantity cm3/10s: (2698)
Test specifications in parentheses	2nd speed 1/min: 1250
rest specifications in parentheses	
Timing dougles abandation	+ Charge press. hPa: 1400
Timing-device characteristic:	+ KSB solenoid-operated
	+ valve volt: 24,0
4-2	+ Overflow : 55138
1st speed 1/min: 400	† quantity cm3/10s: (40153)
Charge press. hPa: 1400	· †
TD travel mm: 3,04,0	† Delivery-quant. and breakaway char.
mm: -	1 4 4 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
KSB solenoid-operated	+ 1st speed 1/min: 700
valve volt: -	+ Charge-air pressure-setting
2nd speed 1/min: 700	+ point hPa: 850
Charge press. hPa: 1400	+ LDA stroke mm: 6,6
TD travel mm: 0,10,9	+ KSB solenoid-operated
mn: (U,U1,2)	t valve volt: 24,0
KSB solenoid-operated	+ Del.quantity cm3/: 78,079,0
_valvevolt: 24,0	+ 1000H.: (74,083,0)
3rd speed 1/min: 850	+ 2nd speed 1/min: 1500
Charge press. hPa: 1400	+ Charge press. hPa: 1400
TD travel mm: 2,12,5	+ KSB solenoid-operated
mm: (1,63,0)	† valve volt: 24,0
KSB solenoid-operated	+ Del.quantity cm3/: 0,03,0 + 1000H.: -
valve volt: 24,0	+ 1000H.: −
4th speed 1/min: 1000	+ 3rd speed 1/min: 1470
Charge press. hPa: 1400	+ Charge press. hPa: 1400
TD travel mm: 2,93,7	+ KSB solenoid-operated
mm: (2,64,0)	+ valve volt: 24,0
KSB solenoid-operated	+ Del.quantity_cm3/: 0,015,0
valve volt: 24,0	+ 1000H.: -
	+ 4th speed 1/min: 1420
Supply-pump pressure characteristic:	+ Charge press. hPa: 1400
	+ KSB solenoid-operated
1st speed 1/min: 500	+ valve volt: 24,0
Charge press. hPa: 1400	+ Del.quantity cm3/: 15,055,0 + 1000H.: -
Supply-pump	+ 1000H.: -
pressure bar: 4,55,1	+ 5th speed 1/min: 1370
KSB solenoid-operated	+ Charge press. hPa: 1400
valve volt: 24,0	+ KSB solenoid-operated
2nd speed 1/min: 850	+ valve volt: 24,0
Charge press. hPa: 1400	+ Del.quantity cm3/: 61,067,0 + 1000H.: (58,070,0)
Supply-pump	+ 1000H.: (58,070,0)
pressure bar: 6,16,7	+ 6th speed 1/min: 1250
KSB solenoid-operated	+ Charge press. hPa: 1400
_valvevolt: 24,0	+ KSB solenoid-operated
3rd speed 1/min: 1250	+ valve volt: 24,0
Charge press. hPa: 1400	Del.quantity cm3/: 82/083/0 1000H.: (79/585/5)
Supply-pump	† 1000H.: (79,585,5)
pressure bar: 7,78,3	+ 7th speed 1/min: 1100
KSB solenoid-operated	+ Charge press. hPa: 1400
valve volt: 24,0	+ KSB solenoid-operated
	+ valve volt: 24,0
Overflow quantity at overflow valve:	† Del.quantity_cm3/: 80,086,0_
1nt massl 46: 500	1000H.: (78,587,5)
1st speed 1/min: 500	+ 8th speed 1/min: 850
Charge press. hPa: -	+ Charge press. hPa: 1400

KSB solenoid-operated valve volt: 24,0 cm3/: 82,5...89,5 1000H: (81,0...91,0) 1/min: 700 Del.quantity 9th speed Charge press. hPa: 850 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 78,0...79,0 1000H: (74,0...83,0) 1/min: 500 10th speed hPa: 1400 Charge press. KSB solenoid-operated volt: 24,0 cm3/: 95,5...109,5 valve Del.quantity 1000H: -11th speed 1/min: 500 Charge press. hPa: -KSB solenoid-operated volt: 24,0 Del.quantity cm3/: 58,5...59,5 1000H: (54,5...63,5) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1250 Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed ELAB voit: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1/min: 375 1st speed KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 4,0...6,0 1000H.: (0,0...10,0) 2nd speed 1/min: 400 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 0,0...4,0 1000H.: -3rd speed 1/min: 325 KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: 12,5..20,5 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 150 Charge press. hPa: -

KSB solenoid-operated volt: 24,0 Del.quantity cm3/: ind. 1000H: 80,0 2nd speed 1/min: 240 Charge press. hPa: KSB solenoid-operated valve volt: 24,0 Del.quantity cm3/: -max. 1000H: 60,0 Shutoff electromagnet: Cut-in

min. voltage : 20,0 : 24,0 Rated voltage

Mounting and assembly dimensions:

Designation

mm : 3,6...3,8KF mm MS mm : 0,8...1,2SVS max. mm : 4,4

Operate control lever after each manifold pressure compensator pressure change.

Correction at adjusting nut (46)

N24

Note inst. in remarks column

Test sheet : CUM 5,9 U31 : 17.05.89 Edition

replaces

Calibrating oil : ISO 4113

: VE 6/12F1250 R304 Injection pump

Type number : 0 460 426 110 Customer Part-No. : 3 915 290

Customer-specific information

Customer : CDC

Engine : 6 BTA

k: 136 Power 1/mi: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina |

bar: 250...253 pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block Piston stroke mm: 1,15

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses Timing-device travel:

Speed 1/min: 850 Charge press. hPa: 1400 Setting value mm: 2,1...2,5

KSB solenoid-operated

volt: 12.0 valve

Supply-pump pressure:

1/min: 850 Speed Charge press. hPa: 1400 Setting value bar: 6,1...6,7 KSB solenoid-operated

valve volt: 12,0

Full-load del. with charge press.:

1/min: 1250 Speed Charge press. hPa: 1400 Del.quantity cm3/ 1000H.: 82,0...83,0

KSB solenoid-operated volt: 12,0 valve Dispersion cm3/: 4.01000H: (4,5)

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed

Del.quantity cm3/ 1000H.: 58,5...59,5

KSB solenoid-operated valve volt: 12.0

Low-idle speed regulation:

1/min: 375 Speed Charge press. hPa: Del.quantity cm3/
1000H.: 4,0...6,0

KSB solenoid-operated volt: 12,0 valve cm3/: 5,5 Dispersion 1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1370 Charge press. hPa: 1400

Del.quantity cm3/ 1000H: 61,0...67,0

KSB solenoid-operated valve volt: 12.0

Start:

1/min: 100 Speed Charge press. hPa: -

Del.quantity : - mind cm3/1000H.: 70,0 KSB solenoid-operated valve volt: 12,0	† †	Charge press. hPa: — KSB solenoid—operated valve volt: 12,0 Oveflow : 4183 quantity cm3/10s: (2698)
Inspection-pump test specifications in pare	fications + entheses +	2nd speed 1/min: 1250 Charge press. hPa: 1400
Timing-device characteristi	ic:	KSB solenoid-operated valve volt: 12,0 Overflow : 55138
1st speed 1/min: 400 Charge press. hPa: 1400	, ‡	quantity cm3/10s: (40153) Delivery-quant. and breakaway char.
TD travel mm: 3,04 mm: - KSB solenoid-operated	,,u	1st speed 1/min: 700 Charge-air pressure-setting
valve volt: - 2nd speed 1/min: 700 Charge press. hPa: 1400	‡	point hPa: 850 LDA stroke mm: 6,6
TD travel mm: 0,10 mm: (0,0		KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 78,079,0 1000H.: (74,083,0)
KSB solenoid-operated valve volt: 12,0 3rd speed 1/min: 850	‡	1000H.: (74,083,0) 2nd speed
Charge press. hPa: 1400 TD travel mm: 2,12 mm: (1,6	+	KSB solenoid-operated yalve volt: 12,0
KSB solenoid-operated valve volt: 12,5	3,0, 1	Del.quantity cm3/: 0,03,0 1000H.: - 3rd speed 1/min: 1470
4th speed 1/min: 1000 Charge press. hPa: 1400 TD travel mm: 2,93	1.7	Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0
mm: (2,6 KSB solenoid-operated valve volt: 12,0	4,0)	Del.quantity cm3/: 0,015,0 1000H.: - 4th speed 1/min: 1420
Supply-pump pressure charac	teristic:	Charge press. hPa: 1400 KSB solenoid-operated
1st speed 1/min: 500 Charge press. hPa: 1400	‡	valve volt: 12,0 Del.quantity cm3/: 15,055,0 1000H.: -
Supply-pump pressure bar: 4,55 KSB solenoid-operated	1,1	5th speed 1/min: 1370 Charge press. hPa: 1400 KSB solenoid-operated
valve volt: 12,0 2nd speed 1/min: 850	+	valve volt: 12,0 Del.quantity cm3/: 61,067,0
Charge press. hPa: 1400 Supply-pump pressure bar: 6,16	7	1000H.: (58,070,0) 6th speed 1/min: 1250 Charge press. hPa: 1400
KSB solenoid-operated valve volt: 12,0 3rd speed 1/min: 1250	† ‡	KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 82,083,0
Charge press. hPa: 1400 Supply-pump pressure bar: 7,78	3	1000H.: (79,585,5) 7th speed
KSB solenoid-operated valve volt: 12,0	~ 	Charge press. hPa: 1400 KSB solenoid-operated valve volt: 12,0
Overflow quantity at overfl	ow valve:	Del.quantity cm3/: 80,086,0 1000H.: (78,587,5) 8th speed 1/min: 850
1st speed 1/min: 500	+	Charge press. hPa: 1400

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KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 82.5...89.5 1000H: (81,0...91,0) 1/min: 700 9th speed Charge press. hPa: 850 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 78,0...79,0 1000H: (74,0...83,0) 1/min: 500 10th speed hPa: 1400 Charge press. KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 95,5...109,5 1000H; 1/min: 500 11th speed Charge press. hPa: -KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 58/5...59,5 1000H: (54,5...63,5) Zero delivery (stop): Mech. shutoff: 1/min: 1250 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H .: max. Idle delivery: 1st speed 1/min: 375 KSB solenoid-operated valve volt: 12,0 / cm3/: 4,0...6,0 1000H.: (0,0...10,0) Del.quantity 1/min: 400 2nd speed KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 0,0...4,0 1000H.: -1/min: 325 3rd speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 12,5..20,5 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 150 Charge press. hPa: -

KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: - 1000H: 80,0 2nd speed 1/min: 240 Charge press. hPa: - KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: - max. 1000H: 60,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,6...3,8 KF mm : -MS mm : 0,8...1,2 SVS max. mm : 4,4

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)